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Global Expert Mission
South Korea Information Communications Technology 2018

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1. Welcome

Innovate UK's global missions programme is one of its most important tools to support the UK's Industrial Strategy's ambition for the UK to be the international partner of choice for science and innovation. Global collaborations are crucial in meeting the Industrial Strategy's Grand Challenges and will be further supported by the launch of a new International Research and Innovation Strategy.

Innovate UK's Global Expert Missions, led by Innovate UK's Knowledge Transfer Network, play an important role in building strategic partnerships, providing deep insight into the opportunities for UK innovation and shaping future programmes.

2. Introduction

The UK and South Korea have a history of partnership in Information Communications Technology (ICT), from collaborations in top performing universities and industrial research to developments in the areas of 5G, Artificial Intelligence (AI), the Internet of Things (IoT), Cyber Security and data analytics. Both countries are members of the Digital 7 (D7), committing significant public investment to ICT.

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The Information and Communication Technology (ICT) Expert Mission to South Korea in February 2018 was undertaken with the following key objectives:

- Develop an understanding of South Korea's development in the "Fourth Industrial Revolution", including in areas such as Artificial Intelligence (AI), Virtual Reality (VR), 5G mobile network, Internet of Things (IoT) and data analytics.
- Explore and establish suitable bilateral collaborative opportunities between the UK and South Korean research and innovation in ICT.
- Identify and engage with public sector, business and innovation stakeholders in South Korea who are key to building UK-South Korea future innovation partnership.

This ICT Expert Mission to South Korea included representatives from Innovate UK, KTN, Digital Catapult, King's College and companies including Alchera Technologies, Bayes Server, Cambridge Applied Research, Ordnance Survey and Valuechain.

The Mission itinerary was formulated by KTN alongside the Science and Innovation Network at the British Embassy in Seoul with site visits and workshops that were conducted over four days in February 2018. The delegation also had the opportunity to visit the live demonstrations of 5G-enabled experiences at the Winter Olympic Games in PyeongChang and participated in the third UK-South Korea ICT Policy Forum with senior representatives from the DCMS, 5GIC and leaders in policy and development of 5G and AI in the UK.

In this publication, we share the information and insights gathered during their time in South Korea.

3. ICT in South Korea: Enabling the 4th Industrial Revolution

3.1 South Korea's 4th Industrial Revolution

South Korea (officially the Republic of Korea) is a sovereign state with a highly-developed economy, a popular and progressive new president, a highly motivated, well-educated workforce and a modern high-tech infrastructure. South Koreans lead a distinctive urban lifestyle with more than half of the population living in the airy high-rises of the greater Seoul metropolitan area. The home of Kimchi and K-Pop has long been the most connected society in the world with highly efficient wifi, mobile calls to action (QR codes, wifi, payment symbols) that are ubiquitous and an effective support to service delivery, and consumers are completely at ease with using what is often referred to as 'new technology' in the UK.

This year, for the second year running, Bloomberg has named South Korea the World's Most Innovative Economy (2018 Bloomberg Innovation Index)[1]. During PyeongChang 2018, Korea proved it is a leader in innovation by delivering a hyper-connected, intelligent, high-bandwidth 5G network; the foundation of a smart city.

Innovation, boosted by significant investment in R&D, is deeply imbedded in South Korean businesses, government policy and culture. The government invests in order to encourage growth, address social challenges and drive the creation of national, world-class infrastructure[2]. The mighty Korean conglomerates, known as chaebols[3], such as Samsung, LG or Hyundai, invest similar amounts in R&D locally and use global acquisitions and mergers to continually boost their internal innovation. And finally, Korean consumers are technologically literate, demanding ever-more sophisticated devices and applications to enhance daily life.

The population, at approximately 51 million, is smaller than that of the UK, but the consumer appetite for digital entertainment and services is far greater, as demonstrated by the queues for KT's 5G pavilion. What we might describe as transformative or disruptive in the UK feels more like business as usual in South Korea.

The fresh government drive for "innovative growth" began in October 2017 when President Moon Jae-in established the 4th Industrial Revolution Committee which now leads ICT policy, planning and investment. Through various ministries and incentives, the government is intensively fostering public-private collaboration to develop smart cities, self-driving cars, smart factories built on intelligent infrastructure and clean, green energy. The handy acronym DNA - Data, Networks (5G) and AI - is in popular use to describe the foundations of the 4th Industrial Revolution and around these the government is publishing a steady stream of roadmaps, investment and policy initiatives.

In effect, the DNA is a growth engine for the republic, intended to expand productivity and competitiveness and address critical social challenges posed by the rise of automation and the needs of the most rapidly ageing society in the developed world[4].

3.2 4th Industrial Revolution Enablers

As is the case in the UK, the term 4th Industrial Revolution is widely used in South Korea as a shorthand for describing the synthesis of cyber and physical systems to create smart cities, smart factories, autonomous vehicles and so on. The Korean Government is developing a clear view on how advances in core general purpose technologies, such as 5G, will enable secondary industries, and it is accelerating 5G delivery as the foundation for growth and catalyst for change. The rollout of 5G is currently happening across smart city testbeds such as Sejong and Busan, and intelligent road signs are being implemented with the ambition of wide-scale adoption by 2020.

The next area of focus is AI, with a roadmap expected this spring. When looking at the use of cloud data and the number of connected devices, South Korea is second only to the USA, with the UK being fifth. The government regards data as being like crude oil, flowing through the networks and devices to create new value and growth.

3.2.1 5G

The Third Korea-UK ICT Policy Forum 5G Workshop was held with the involvement of a senior delegation from the DCMS, members of 5GIC, the Expert Mission team and their South Korean counterparts from:

- Ministry of Science and ICT
- 5G Forum Subcommittee
- Program Director for Korea Telecom (KT) 5G PyeongChang Olympics
- Electronics and Telecommunications Research Institute (ETRI)

[1] **Bloomberg Innovation Index announcement:** https://www.bloomberg.com/news/articles/2018-01-22/south-korea-tops-global-innovation-ranking-again-as-u-s-falls
[2] **Government to pump in 2.2 tln won through 2022 for 4th industrial revolution:** http://english.yonhapnews.co.kr/news/2017/11/30/0/0200000000AEN20171130010000320F.html
[3] **What is a Chaebol?:** https://en.wikipedia.org/wiki/Chaebol
[4] **South Korea's Ageing Population: Census statistics information:** http://www.koreatimes.co.kr/www/biz/2017/08/367_235722.html

The discussion was broad, touching on the priorities for each country regarding the following; 5G use cases, initial focus, the role of security, government's interaction and intervention policies and mechanisms for R&D, deployment, spectrum, rollout plans and device availability.

South Korea's plans for 5G deployment are clear and mature. There will be five or six trial projects involving the three major operators, each with a particular use case. 5G is regarded by the government as a catalyst for digital innovation in these vertical sectors:

- Intelligent Service – AI, robotics
- Public Service – emergency services, intelligent road signs
- Autonomous Service – driverless cars, transport, drones
- Immersive Service - AR/VR games, training simulations
- Omnipresent service - smart cities, smart factories

There is an effective and dynamic working relationship between the government, who set the roadmap and provide support for easing certain challenges, and the operators.

The Ministry for Science and ICT manages the spectrum allocation and auction and is currently accelerating the rollout of 3.3-3.6GHz and 26.5-29.5GHz bands, with a planned 27.5 – 28.5GHz auction in June 2018 (a straight-up auction where the proceeds go directly to the Finance Ministry). Making this happen a year ahead of the planned roadmap is regarded as a sound public intervention to support early rollout and enable other projects.

There is a push for shared infrastructure in rural areas, with government intervention appearing to focus on fixed (fibre) enabling mobile communications. Whilst there is significant government investment in R&D in South Korea, there is no specific public mandate for operators to invest.

On the operator side, KT is looking at additional business from 5G but not yet putting forward services beyond core communications. Their view seems to be that 5G will be successful, but currently there is not sufficient demand. Their network is not congested - capacity planning is driven by over-provisioning which is not the case in the UK - and currently more than 60% of traffic is video content consumption. The South Korean mobile operators work in a highly competitive environment and the government publishes annual mobile network performance data which drives consumer choice. It is clear that there is a close, directed discussion going on in terms of coverage and service obligations between operators and government, but this is not publicly embodied in the manner of Ofcom.

KT's deployment roadmap is clear: deployment of eMBB 5G service in 2019 in 3.5GHz band, with eMBB mmWave (28GHz) hotspot service. Device availability is still under discussion. Samsung 5G tablets are already available (and were tested by the Mission team in demonstrations in PyeongChang), but no mobiles are available yet and there is a sense of device manufacturers being slow in bringing handsets to market.

As with the UK, a new high-speed train service is seen as a high priority in Korea, and there was a direct offer to collaborate in 3GPP standards. The Koreans also requested some collaboration or support from the UK around the 26 vs. 28GHz spectrum allocation discussion and voting in next year's WRC19 – which is something Ofcom may be considering.

Enterprise (private) mobile networks were not of particular interest, largely because the very powerful vertical industry players and manufacturers, such as Samsung or LG, prefer to negotiate and run their own networks. Spectrum may be allocated to them in future by another ministry. The South Koreans were familiar with UK government initiatives, university research and the work of 5GIC and they expressed an interest in pursuing:

- collaboration on global 5G mmWave spectrum harmonisation
- high speed mobile service train standardisation in 3GPP
- exchange of information on verticals (listed above) innovation.

It was stated that eMBB is the primary use case driving initial innovation and the rollout of 5G in South Korea, along with the URLLC (Ultra-reliable low-latency communications) to enable smart batteries, smart cars and smart cities. In addition, their consumer services seemed to be exclusively focused on delivering consumer video and games rather than the wider and more imaginative public services the UK is exploring.

[12] www.growthenabler.com

3.2.2 AI

Several South Koreans encountered during the Mission confessed to having been caught on the hop by the impact of Alpha Go (the Go-playing computer developed by Google DeepMind in London in 2015) and there was a sense that they lag behind the US and the UK in terms of delivering artificial intelligence at scale. Currently only three South Korean universities feature in the top 500 in the world ranking on AI and it is taking time to strengthen expertise in this area. South Korean SMEs may also be behind the curve - on further examination, the Mission discovered that their activities were heavily based on chatbots and voice applications driven by IBM Watson-type engines.

However, South Koreans are outward-looking, determined and fast followers. The chaebols have global access to business intelligence, research centres and data which will inevitably mean they catch up fast - either through their own R&D programmes or through mergers and acquisitions.

At a government level, AI is a key area of focus for R&D investment and MSIT plans to publish an AI strategy and roadmap this spring. To date AI development seems to have been inhibited in Korea by a rigid regulatory environment, lack of data availability and insufficient innovation in products and services. To address this, they have launched an AI Open Innovation Hub (an online portal) and announced that they will share government data. The government representatives were already aware of, and closely following, the UK's policy developments in ethics, privacy, standards and the sharing of big data.

Samsung is perhaps South Korea's most well-known and biggest conglomerate, accounting for nearly 20% of South Korean exports and currently spending $19 billion a year on R&D across its whole portfolio around the world. At the end of 2017, Samsung reorganised the Software R&D divisions and Digital Media and Communications R&D centre to create Samsung Research - an integrated R&D division for consumer electronics, IT and mobile, whose priorities are to build a leadership role through development of research into AI, IoT, Data and Cloud[5].

Samsung Research may have started late on AI compared to others but is now investing in a global scheme to build research centres and competencies. It is setting up five new research centres globally, each with a particular focus, one of which is based in Cambridge where the focus is on AI[6,7]. The others will be located in South Korea, Canada, US and Russia, all close to universities and embedded tech start-up zones. The plan is to give Samsung a leading edge in areas where AI can be used such as management processes for manufacturing, governance, incubating new businesses and other business operations.

3.2.3 Smart Manufacturing

As one of the world's leading manufacturing economies, South Korea has been cultivating "smart factories" for some years since launching the Manufacturing Industry Innovation 3.0 initiative in 2014. As with 5G, the government is investing in R&D and collaborating with private companies to increase the number of domestic smart factories, with a shared goal of having more than 30,000 factories by 2025.

There are labour market issues in Korea since people tend to stay with the same company for their whole career and as automation evolves the government plans to support educational training for skilled workers in order to maintain high-quality jobs.

3.2.4 Innovation Incubation

Seoul's answer to Silicon Valley, the Pangyo Techno Valley in Gyeonggi Province, is an innovation park where there is a focus is on information, biotech, fintech, cultural and fusion technology. It is home to South Korea's biggest ICT-based R&D innovation cluster powered by more than $4.2 billion of government investment. Here SMEs and start-ups can exchange information with research institutes and global companies, seek investment and receive support through critical points of growth.

There is geographical sense to the Valley, clustering companies together in a corridor connecting the financial district, hardware manufacturing zones and Samsung City. This provides a global testbed for advanced technology within easy reach of the airport. More than 70,000 people work in the park, half of whom are researchers. The demographic is young with 52% of workers are in their thirties. Next year there will be a fleet of autonomous vehicles on the Pangyo Valley roads providing a testbed for future development and a showcase for visitors.

Gyeonggi Centre for Creative Economy and Innovation (GCCEI) is one of a network of eighteen innovation centres set up to incubate and accelerate start-ups and SMEs from South Korea and around the world. The centres are funded by a mix of central government (through the Ministry for SMEs and Start-ups), local government and large corporations like LG, Hyundai or Samsung who each assign budgets and provide a focus for activity.

KT Corporation (KT) is the lead sponsor for GCCEI. KT have their own innovation hub as well as R&D divisions but the connection to GCCEI allows them to tap into a wider pool of ideas and explore potential new business models. Inevitably they have first-sight of ideas that may be suitable for their business and can therefore either buy out the start-up, or employ the staff within it, at an early stage.

Within GCCEI there are more than 120 start-ups working in games, 5G, ICT, AI and fintech and more than 1,000 start-ups across the whole innovation network. The centres provide facilities, offices, networking, marketing, translators, mentoring and an opportunity to meet investors along with a deep connection to the centre sponsor.

There are currently five foreign start-ups on the Gyeonggi campus and an ambition to attract more. The focus is on companies who are in their first three years of business, and they may be involved with GCCEI for anything from

[5] **Samsung Research launched:** https://news.samsung.com/global/samsung-research-launched-to-help-drive-samsungs-leadership-in-future-innovation
[6] **Samsung AI Centre Cambridge was launched in May 2018:** https://news.samsung.com/uk/samsung-to-open-new-ai-lab-in-the-uk
[7] https://research.samsung.com/aicentre_cambridge

six to eighteen months and then move on. All centres work together so a start-up is treated independently wherever it is registered within the network. Jonghwi Lee, Director of the Open Innovation Lab, said that they have recently established links with Israel who are interested to see how this model works, both in supporting start-ups but also in attracting international start-ups.

The centres provide the space, the infrastructure and facilities to enable multinationals and start-ups to collaborate on challenges such as the K Start-up Grand Challenge[9], an accelerator programme launched in 2016 by the National IT Industry Promotion Agency and funded by the Ministry of SMEs and Start-ups.

Recruitment of companies for the K Start-up Grand Challenge is through local points of access and globally through Korean embassies abroad. Last year there were 2,200 applications for just 50 places.

3.3 PyeongChang 2018: "The first ever 5G Olympics"
Hosting the 2018 PyeongChang Winter Games provided South Korea with the unique opportunity to showcase their leading-edge technologies to audiences around the world. Dubbed the "first ever 5G Olympics" the games provided the ideal content and context for a range of tangible, crowd-pleasing experiences connecting applications with vehicles, cameras of all types, drones, games, maps, sports equipment, multi-screens and more - all pointing to how this technology is changing daily life.

This large-scale demonstration of connected technologies was mainly provided by Olympic partners KT Corporation (formerly Korea Telecom, South Korea's equivalent of BT), Samsung and the Hyundai Motor Company. In the KT pavilion, for example, visitors were eagerly watching live 4K streams of video on Samsung's 5G-ready tablets. Experiences on offer included:

3.3.1 5G Networks

With mobile connections promising processing speeds at least 25 times faster than LTE (Long Term Evolution), the world's first 5G network was accessible at various locations around the games, marking the beginning of a national infrastructure roll out. KT's 5G connected bus and accompanying vehicles provided an incredibly immersive journey to the near future.

The bus ran on a two-to-three kilometre public road lined with 21 5G mmWave base stations (provided by Samsung), located to provide full coverage of the track. 5G communication infrastructure was used for both URLLC (Ultra Reliable Low-Latency Communications) supporting the self-driving application and eMBB (enhanced Mobile Broadband) service for video. The radios used beam-forming and beam-tracking.

The demonstration was extremely well-conceived, full of compelling examples of how 5G could improve passenger experience. From real-time maps and virtual scenery to holograms and games – but most impressively, the bus was driverless. 5G responsiveness and the use of location data, which is only possible at such high bandwidth, meant that the bus could anticipate the traffic ahead and react to changes en route. The bus is still a prototype but KT tentatively expect it to be on the road in some areas by 2020.

Photos of the video wall in the bus demonstrating available download speeds on the move.

3.3.2 AI "Smart AI Olympics"

These included an AI-based multilingual translation service, AI call centres and various autonomous vehicles. Automatic interpretation and translation was provided through AI-based call centres which answered queries, in Korean and English, regarding qualifying events, transport queries and so on. There were also several robots on display at the games venues including robot cleaners, mural-drawing bots and water-polo-playing robot fish.

3.3.3 IoT "The Most Convenient Olympic Experience"

Upon arrival and departure, personalised navigation systems offered guides and location-based notifications about events for athletes, media representatives and visitors. These included a way-finding service, called AR Ways, where augmented reality imagery was overlaid on a live video to provide accurate guidance around the Olympic venues. The Play IoT Kiosks created team cheering images, welcome messages, a virtual medal podium and other experiences.

A smart band was available to athletes containing the door lock for the Olympic and media villages. It also provided useful local information including weather updates, competition schedules and dining recommendations. In addition, an athletic performance-improving IoT service supplied ice chamber and science-based performance analysis for skates and other equipment.

[9] https://www.k-start-upgc.org

3.3.4 VR "More Than a Spectator"

Several crowd-pleasing, immersive winter sports experiences were on offer in the KT pavilions including a VR ski jump, which did not require a VR helmet, arcade-style VR snowboarding, a VR four-man bobsleigh run, a VR roller coaster set in a child's bedroom, and a VR shooting game.

3.3.5 UHD and Immersive TV Coverage

Key events were broadcast live in 4K UHD on terrestrial channels and Ultrawide Vision was demonstrated for the first time. The UHD Experience Studio provided broadcasters and producers with an opportunity to experience new production techniques using the rich 5G connections to ubiquitous cameras, drones with cameras, and sensors. The range of new experiences on display in the KT pavilion included:

- Sync View - real time images from a first person viewpoint demonstrated on a bobsleigh kitted up with cameras and sensors uploading images at 40mbps.
- Point View - allowing the user to select the POV of an athlete at a particular point, demonstrated in cross-country skiing.
- Time Slice - allowing the user to stop at a specific moment in figure skating and view it from a 360° angle. This very impressive function could be used in many ways to enhance sports and other activities. The makers claimed that rendering was performed in real-time, with the images transmitted in raw format at 10Mbps/camera, making the whole system require 400Mbps. The system worked using mmWave (26GHz) installation in the stadium, which was fitted with more than 40 tiny, high-speed cameras allowing for high-quality instant replay, zoom and pause.

3.3.6 Hyundai Autonomous Car

Hyundai, also an Olympic partner, used the games as an opportunity to showcase their fleet of hydrogen-fuelled self-driving cars on public roads around PyeongChang. The cars required a driver for certain roads but were capable of autonomous driving. Each car sported an array of radars and cameras connected to KT's mmWave 5G cells along the 7km track. It was not immediately clear where the hydrogen supply for the fuel cell cars would come from, beyond being generated using solar power. Hyundai hope to have some autonomous cars available in "smart city" areas of South Korea by 2021. The theory behind the fuel cells was artistically interpreted in a large art installation (The Seed of New Society) in the Hyundai Pavilion.

4. UK-South Korea Collaboration

4.1 Overview

South Korea is dubbed the "free trade king of the planet", eager to work with the UK and the first to offer a free trade deal following the Brexit vote in 2016. It is the fourth-easiest country in the world to do business with[10] and provides a helpful gateway to China and the wider Asian market. Alongside Israel, Korea had the highest ratio of R&D expenditure to GDP in the OECD main science and technology indicators in 2015 at 4.2%[11] and it has created testbed environments like the Pangyo Techno Valley where global research and collaboration projects are encouraged.

However, when it comes to innovation, the same OECD report mentioned above, points out that, "Korea has one of the lowest levels of international collaboration in science and innovation among OECD countries, with 3.4% of patents involving co-invention, and (only) 26.4% of scientific publications involving international co-authorship".

This is down to a range of factors: the power and scale of the chaebols that are patent-hungry and simply buy start-ups or SMEs from around the world when they offer expertise or ideas which could drive innovation within their vertical; cultural barriers such as the time it takes to develop mutual understanding and collaborative relationships; a lack of particular skills and dynamism in the labour market; and a nervousness surrounding IP issues. South Koreans excel at making technology affordable for everyone. They have a rapid, iterative, "clock-radio" approach to development, watching what others do and then doing it.

The fresh drive behind the 4th Industrial Revolution suggests that Korea's impressive record in domestic innovation and R&D funding needs further boosting in order to create real growth and address key strategic challenges. There is now more bilateral engagement and good intent ("a clear desire to move the needle a little"), but fostering collaboration, particularly at SME level, brings cultural, communication and practical challenges.

4.2 Collaboration Opportunities

This Mission's scope was broad and the time spent in South Korea was short, but it was clear that bilateral collaboration, innovation and knowledge-exchange is mutually beneficial and there is a will to do more.

The South Koreans are confident and advanced in terms of networks and infrastructure delivery and are keen to collaborate with the UK on AI/IoT where the UK has leading-edge research, skills and imagination. Policy-makers are also keen to collaborate on standards and topical issues such as ethics and privacy. Both sides see value in focusing R&D on areas which would otherwise not receive as much attention from the private sector.

Much of what was demonstrated and discussed emulates the UK's industrial Strategy Grand Challenges - AI and Data Economy, Healthy Ageing, Clean Growth and the Future of Mobility - and the ICT sector opportunities for collaboration which emerged during the visit included:

- Health and Social Care: There is a natural synergy between the two countries' aims and common issues for SMEs wanting to enter this space. For example, Jack H. Lee from Selvas AI highlighted that as an SME, there is data in the healthcare sector they cannot reach. He felt more discussion is needed between the private sector and government in order to foster innovation - a sentiment echoed by AI start-ups in the UK. The South Korean government has pledged to provide medical information exchange by 2022.
- Connected Vehicles, Trains and Control Systems: South Koreans were keen to collaborate on the development of 5G on high speed trains and rail networks. There is a plan to implement intelligent road-signs across South Korea by 2022[12,13].
- AI and Data: The infrastructure in place in South Korea, particularly in places such as Pangyo Valley, could provide a rich opportunity for AI builders who need access to testbeds in order to develop services and gather data. South Korean start-ups spoke of similar challenges in accessing data and security as their UK counterparts.

[10] **Ease of doing business index:** https://en.wikipedia.org/wiki/Ease_of_doing_business_index#Ranking
[11] **Highlights from the OECD Science, Technology and Industry Scoreboard 2017 - The Digital Transformation: Korea:** http://www.oecd.org/korea/sti-scoreboard-2017-korea.pdf
[12] **Korea Health Big Data Initiative:** http://www.theinvestor.co.kr/view.php?ud=20180209000809
[13] http://www.businesskorea.co.kr/english/news/industry/17870-securing-biz-model-korean-gov't-build-bio-big-data-system

4.3 Potential Challenges

4.3.1 South Korean Perceptions of UK ICT

South Koreans' perceptions of the UK are shaped by their affection for classic consumer brands like the BBC, Burberry, or Boots (who have recently opened a successful flagship store in Seoul). UK ICT activities are less widely appreciated. Moreover, the UK does not yet have a reputation for AI innovation, software development or industrial IoT in South Korea. Whilst the Koreans were extremely impressed by AlphaGo, it was regarded as a Google (US) project rather than as a London-based success-story. They are aware of Alan Turing because of the film The Imitation Game (2014) but do not seem aware of the continuing work of the Alan Turning Institute. When they think of technology, the Koreans think first of Silicon Valley; when they think of smart manufacturing, they think first of Germany.

4.3.2 Differences in Business Culture

For many UK SMEs, entry into the Asia Pacific region can be challenging compared to working with Europe or North America. Distance, business culture, market knowledge, regulation issues and intellectual property law can be a minefield for UK SMEs, and where there are opportunities the assistance that the UK offers to companies is focused on high growth, 'near-to-market' propositions rather than more risky or innovative projects. Language can be a barrier but since English is widely spoken in South Korea, this is less of an issue than in some other countries.

Engagement between businesses, particularly at a senior level, can be a challenge. Finding the right person to talk to at a senior level or finding the right body with which to engage takes time and requires facilitation. Formal, facilitated introductions are the starting point of a relationship and great emphasis is placed on the strength and depth of relationships, which clearly take time to develop. That said, once relationships are established Koreans are strong and loyal partners.

Keeping abreast of the business dynamics in science and innovation in South Korea can be time-consuming, with a matrix of overlapping government ministries to steer through, as well as regularly evolving policies and opportunities.

To be successful in South Korea it helps to have a local presence and most UK companies working there have at least one local representative. The Embassy can help, but a credible local partner is preferable, and this can be a stretch for an SME. Also, the dominance of the chaebols in the Korean economy can make it difficult, even risky, for small and medium sized companies with new ideas to grow.

4.3.3 Policy and Regulatory Considerations

The umbrella term 4th Industrial Revolution is widely used in government circles to describe the convergence of data, 5G and AI, and these are dealt with in a holistic manner in South Korean policy terms. We did not have time to examine details on open data, data protection or governance, but there was a sense that rigid regulations have inhibited innovation in the past and that changes are imminent. The South Koreans expressed their high regard for the way in which The UK plan its policy and were keen to collaborate with the DCMS on standards, ethics and privacy.

With regards to 5G, there appears to have been more government intervention than in the UK but, as mentioned earlier, South Korea's regulatory environment is more transparent. South Korean policy is to distribute frequency quickly to operators to encourage the growth of networks whilst in the UK encourages trials in parallel with allocating spectrum.


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