SCEnAT 4.0 for Industry 4.0

Industry 4.0 and Revolution

Industry 4.0 has been presented as the latest industrial revolution. It has a major role in transforming the World's industrial processes within organisations and across the supply chains.

This can be achieved using large-scale Machine to Machine (M2M) and Internet of Things (IoT) deployments to increase efficiency and productivity in supply chains across sectors. Factories will become increasingly autonomous with closer integration between machines and workforce, providing a seamless process with minimal waste. Industry 4.0 will use the IoT and cyber-physical systems such as sensors to collect data. Such advances enable big data analytics and the creation of intelligent supply chains.

In the recent Build 2018 Conference, Microsoft has set their vision and priority in the role of future technology, their advancements, new tools and Cloud services to help developers create a better, safer, more just World. Artificial Intelligence (AI) is at the heart of these advances, which brings together societal need, Intelligent Cloud and Intelligent Edge. In the next 10 years, billions of everyday devices will be connected — smart devices that can see, listen, reason, predict and more.

Policy Implications

The UK 'Made Smarter' review has identified key requirements to support the digitalisation of manufacturing as shown below:

- the increased pace of adoption of industrial digital technologies,
- the faster innovation of these technologies,
- the need for stronger and more ambitious leadership to transform UK industry.

Industrial Digitalisation Technologies (IDTs) are key to both improving prosperity and reducing the environmental impact of industry. IDTs can improve the resource efficiency of industrial processes. IDTs can perform a crucial role in developing a resilient UK industrial base that can ride out disruptions in resource availability, as well as making the UK industrial system more sustainable over the long-term.

China have developed a policy known as "Made in China 2025" to boost high value manufacturing in their supply chain. This spans across targeting strategic materials innovation, digitalisation, energy and transport revolution (such as electrification) and so on. Such policy links with major development of science and innovation park

across China, driving closer collaboration between knowledge providers such as universities and research centres with industry. AREC China (based in the Science

Park in Beijing) was launched in 2018. This provides a strong foundation to enable co-development of new advances that make huge impact in China industry and Made in China 2025 policy.

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By eliminating inefficiencies across the supply chain, supply chain productivity will be improved. To achieve this, intelligent data management will play a critical role. New digital technologies are enabling new levels of increased connectivity and the more effective use of data. Advances in technology are enabling more data to be collected more quickly and this data can be easily accessed from multiple sites, safely shared between different partners in a supply chain, and more effectively analysed.

These technologies allow manufacturers to respond to increasing consumer demands for faster delivery and more personalised products and services. A transition in the way that supply chains operate from the current linear supply chains (with limited use of data and new technologies) to a digitally connected supply chain network supported by these technologies.

UK leaving the EU (Brexit) will open doors to international collaboration and trade deals opportunities. Such environment requires integrated intelligent supply chain and future network and system capable of seamless transactions and management of flow of assets, goods and services (tangible and intangible).

Based on the policies mentioned in this document and industrial need, SCEnAT 4.0 for Industry 4.0 which embrace Blockchain, Artificial Intelligence (AI) and Machine Learning (ML) solution will transform future supply chain to digitally connected system and network. AREC is working with key partners on these, and more details of its release will be made public in due course.