Item 9: Spin off benefits of space technology, United Kingdom

Chair, Distinguished Delegates

The United Kingdom Delegation recognises the significant value of the “spin-off benefits of space technology.” Space applications and hardware used on Earth demonstrates how space innovation can effectively address diverse sustainability and socio-economic challenges.

The UK takes pride in the development of innovative space application technologies that contribute not only to the space economy but deliver tangible benefits across sectors. A compelling example of innovation is the use of human spaceflight technology in healthcare. In the UK, frameless motors used in satellites and the Mars Rover, have been adapted for ventricular assist devices (VADs). Using magnetic levitation, these VADs offer advantages over traditional models: they can be implanted without open-heart surgery, reducing risk and expanding access. This repurposing of reliable space technology highlights how advancements in one field can transform outcomes in another.

Another use of a space technology spin-off is through the application of ion propulsion principles in the development of portable x-ray imaging devices for the medical sector. Compact ionisation tech developed for satellites have been adapted for portable x-ray devices. Portable x-rays provide the healthcare sector with needed practicality and a cost-effective approach. This allows imaging to be done at the patient’s bedsides. They are practical for quick diagnosis, monitoring treatment progress, and use in remote or resource-limited settings such as field hospitals or care homes.

In a similar vein Electric Propulsion is helping build vastly improved orthopaedic joint implant improvements from neutral electron beam welding.

There are several Formula One constructors who use Heat Exchange Technology designed to cool the air for the Synergetic Air-Breathing Rocket Engine (SABRE) to improve race performance. We are also seeing improved robotic autonomy to allow tunnel surveying deep below the ground, based on the software algorithms designed for space robotics.

These are just a few examples.

In conclusion, the UK will continue to support companies looking to take on these challenges through the development of space applications and space technologies.