

4IR & THE ENVIRONMENT



Continuing to explore our Chairman’s archives, during Covid lockdown he introduced a report by the ‘Social Market Foundation’ which describes itself as follows. *“The Social Market Foundation (SMF) is a non-partisan think tank. We believe that fair markets, complemented by open public services, increases prosperity and helps people to live well. We conduct research and run events looking at a wide range of economic and social policy areas, focusing on economic prosperity, public services and consumer markets. The SMF is resolutely independent, and the range of backgrounds and opinions among our staff, trustees and advisory board members reflects this.”*

Written by Scott Corfe and published in January 2020, the report, entitled ‘4IR and the Environment’, explores the role 4IR technologies can play in reducing air pollution and decarbonising the economy. The following is an extract from the report’s executive summary.

“4IR refers to the latest technologies which are building on the digital revolution that commenced in the second half of the 20th Century. This includes internet connected appliances, driverless cars, big data, robotics and artificial intelligence.

The environment has surged up the political agenda in the UK, and voters now report it as among the top issues facing the country. The YouGov Top Issues Tracker shows the environment now more likely to be reported as a top issue than education, housing and pensions. In part, this reflects mounting evidence on the consequences of climate change and environmental degradation.

- *Data from NASA shows that, in 2018, global temperatures were on average 0.8 of a degree Celsius higher relative to 1951-1980.*
- *Climate change is already having a number of effects on human lives and the wider ecosystem. The world has seen an increase in both the frequency and severity of heatwaves in recent years*
- *Rising average temperatures are changing the nature of our planet. Since 1870 sea levels have risen by 20cm, with about 8cm of this rise occurring since 1995.*
- *In addition to climate change and global warming, air pollution is also a growing concern. Particulates, and other emissions from vehicles and industrial activity, are now known to be detrimental to health:*
 - ❖ *Air pollution is the single largest environmental risk factor to human health. According to the World Health Organisation (WHO) nine out of ten people worldwide breathe polluted air. It is responsible for around 7 million deaths per year.*
 - ❖ *A recent study published in the European Heart Journal estimated that emissions are responsible for 64,000 annual deaths in the UK, just 18% less than the 78,000 deaths caused by tobacco.*
 - ❖ *An increasing body of research has shown that air pollution - even in relatively low doses - has a negative impact on educational outcomes.*
 - ❖ *This report identifies a number of channels through which 4IR technologies can tackle the environmental challenges associated with air pollution and global warming. These include:*
 - ✚ *Better monitoring of air quality, using affordable low power wide area networks (LPWANs) to track air quality.*
 - ✚ *More personalised advice on air pollution.*
 - ✚ *Using technologies to remove pollution and carbon from the air. Emerging technologies include:*
 - *Robotic trees.*
 - *Parasitic drones.*
 - *Air-cleaning buses.*
 - *Air separation plants: industrial plants focused on removing carbon from the atmosphere.*
 - ✚ *Cleaning up transportation through:*
 - *A shift to autonomous vehicles. Automated vehicles (AVs) are designed to be more fuel and energy efficient than their diesel, petrol, and electric counterparts.*
 - *Creating fleets of autonomous vehicles and improved public transport, reducing the need for private car ownership.*

- *Sophisticated road pricing, which smooths traffic throughout the day and relieves congestion in urban areas.*

- ✚ *Using big data and blockchain-based solutions to encourage environmentally friendly decision making by consumers and businesses. This can allow customers in stores to see the carbon emissions of their purchases at the point of sale.*

- ✚ *Decarbonising industry through:*
 - *Green commercial vehicle fleets.*
 - *Reducing computer energy usage through wider uptake of cloud-based solutions.*
 - *Usage of virtual and augmented reality to replace meetings/site visits.*
 - *3D printing – to enable local production of global designs and reduce final product transportation.”*

The views in the report are those of the author (Scott Corfe) and not necessarily those of the Social Market Foundation or the Schools’ Aerospace Careers Programme. Now read on at: [4IR-and-the-Environment-Report-Jan-2020-1.pdf \(smf.co.uk\)](#)

www.aerospacecareersprogramme.co.uk

