

Small Data - Big Impact

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A Green Agenda cannot be fully realised by polishing our established industries and processes, or indeed minimalistic changes to manufacturing, production, and supply. We have to be far more holistic and radical! New materials and processes will get us part way there, but we also need the greater data oversight, analysis and management, provided by a fully deployed Internet of Things (IoT). In turn, this will require the application of Artificial Intelligence, Computer Modelling and War Gaming to provide the necessary guidance and decision support for machines and people.

Energy and material waste are definitely key components, but so are hyper-efficient Re-Use, Re-Purposing, and Re-Cycling with maximal material recovery at very low loss. And so, access to and analysis of, the Big and Small Data collected by networks and the IoT components is vital. For obvious reasons of unrealisable energy demands and network node densities, mobile networks and network technologies (such as 5G) cannot support such a vision and we can expect to see a migration to new network regimes where our machines, appliances, devices, vehicles, sea going containers, pallets, boxes, products and components communicate directly over very short distances in preference to using 3/4/5G and WiFi networks.

Many IoT components include sensors and access to information about their hosts; and this is vital to performance monitoring, timely maintenance and repair. Real time location, production, supply, use and ownership information will change the way we design, manufacture, supply and meet the needs of society at all levels from health, welfare, employment, education, industry, commerce, defence, and government. Many of these elements exist today, and more are under development, and in this paper and presentation we bring together these core components in a vision of future sustainability.

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