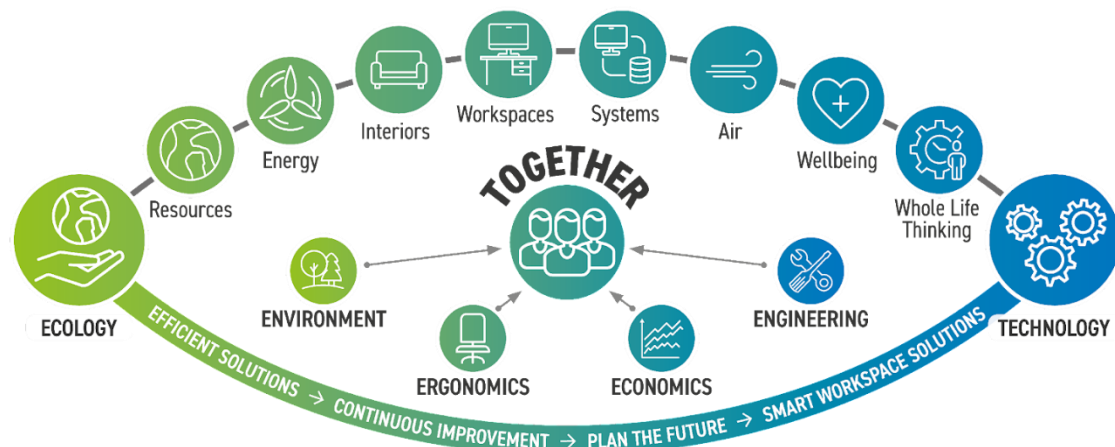


Circular Economy – an overview and case study

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Circular Economy – What is the circular economy, and why is it necessary to reducing waste and environmental impact in supply chains? How can the circular economy promote the use of responsible sources and responsible use of resources throughout the supply chain.

Historically, the global economy is structured on continuous growth based on the materials needed always being available. The planet’s natural resources are finite, and we will need two Earths to sustain our current rate of consumption. Hence, we need an economy where waste is treated as a re-useable resource and can be recirculated. In turn, this will provide the Earth with the opportunity to replenish its natural resources, but of course, human effort is required to aid this process in areas such as re-forestation and land reclamation.

Undoubtedly, a circular economy provides us with the means to deal with the climate emergency and address humanity’s impact on the planet’s biodiversity. In parallel, this requires the 1% of the population who owns 30% of global wealth, to invest in ethical businesses and developments in order to increase prosperity, employment and resilience, while at the same time improving the environment for everyone’s benefit.

The construction Industry has its part to play because it is a significant producer of waste, and in England alone is one of the biggest culprits, producing about 66% of the national waste. Accordingly, the path to net zero requires the waste created by buildings to be eliminated through prevention, re-purposing and recycling. To assist with this, The Green Construction Board (GCB), in collaboration with Defra and BEIS have produced a roadmap for the use of all parties involved in the Built Environment.

However, waste in the supply chain is not just about energy, or packaging, it is about the exploitation of natural resources and it is this that presents a huge challenge, particularly as resources are running out. Notably, freshwater, which only makes up 2.5% of the world's total water resource. Nevertheless,



the diminishment of critical elements and raw materials essential for modern technology is an increasing concern including the production of low energy equipment and control systems.

Organisations such as SPIE, have significantly increased their efforts to reduce waste, seek opportunities to increase the life cycle of equipment, select supply chain partners that have good sustainability policies and look towards partners that are striving for innovative ways to manufacture with more recycled materials, such as in the use of 3D manufacturing of light fittings.

All that said, there is concern that there are insufficient reserves of several metals required to build a fully renewable energy system to cope with the ever increasing consumption of energy over the next 20-30 years, which when coupled with a growing population and increasing size of urban communities, adds up to an extremely challenging mixture of priorities. This will require continuously improving collaboration and sharing of knowledge to create fast track solutions to stabilise the climate, meet the demands of societies and change to renewable energy sources and applications.

This collaboration should lead to the use of technologies, integrated with the refurbishment of buildings, that not only last for very long timescales, but can be easily maintained and operated in a highly sustainable and resilient way to satisfy the needs of our growing cities.