Industry and Enterprise Knowledge Organiser

There are various initiatives and new technologies which drive industry and manufacture. The Circular Economy is perhaps the most important new initiative.

Design/Manufacture

Up to 80% of a product's potential impact on the environment is locked in to the design stage. By looking at ways of reducing materials, reusing materials and components and using recycled materials, this stage can make a big difference to the cycle

Reuse/Repair/Recycling

The rise of electronic handheld devices and portable electronics have led to huge amounts of waste electronic equipment being sent to landfill. Most devices can be broken down into constituent parts and some of the materials recycled. A large proportion of waste electronic products can actually be reused with minor repair.

Retailer

Vital reductions can be made at this stage, such as reducing or eliminating food packaging materials (even down to the ink used for printing). An example of this is in all UK supermarkets, where plastic bags are no longer given away free to shoppers.

Recycling Sector

Materials and some components can be recycled and used again in the design=/ manufacture process. There are incentives nationally and globally to support providers to develop recycling systems to reintroduce materials back into the design and manufacturing process.

Consumer/Householder/Local Authorities

Local authorities are responsible for ensuring people's domestic waste is collected and recycled as far as possible. Householders can have a big impact on how much is generated by reducing the amount they throw away and by sorting their waste prior to collection.

What are the impacts of new and emerging technologies when developing design solutions?

People

Lifestyles

New technologies can have a huge positive impact on people's lifestyles.

- A large amount of people's **social interaction** now happens trough electronic devices on social media.
- The **sleep cycles** of teenagers are affected by prolonged use of electronic devices.

Culture

Many facets of culture have been positively impacted by new technologies.

- In the workplace, there is an **'always on'** culture, which puts extra pressure on employees to perform, and consumers to access the company's facilities.
- Some people worry that as we expect more from our technology, we will expect less of each other.

Society

The impact of new technologies on the end user is far-reaching and the benefits are compelling in advancing society in terms of health, communication and economic well-being.

Other factors can be seen as inhibiting: for instance, in manufacturing, new and emerging technology can improve and streamline how a product or component is made, which may reduce the cost. Cheaper materials can be used and fewer people are likely to involved in its manufacture. In turn, this may result in higher rates of unemployment in a particular area, leaving an economic impact on the society.

Sustainability

New and emerging technology can be used to create sustainable solutions, with benefits for the user and the environment.

- **Drones:** as drones become more sophisticated, they are being employed in a wide variety of fields. They are used extensively in solar farms, where they can monitor for damaged panels.
- **3D printers:** most 3D printers use filament made from High Density Polyethylene. In India, an environmentally minded businessman has set up a production facility at a local dump, where waste HDPE from plastic bottles is converted into 3D printing filament. The finished recycled product is sold to 3D printing companies.

The Environment

There are also significant disadvantages, including:

- **Increase in travel leading to greater air pollution:** air travel has a major impact on the environment and new technology, from online booking to autopilot navigation, makes it easier than ever to travel in this way.
- **Excess power consumption:** owing to the high use of technology, power consumption is at all-time high. Electricity is generated through the use of fossil fuels or nuclear fuel.
- **Generating higher levels of waste:** as we upgrade our technology, it becomes more difficult to reuse parts of these increasingly small products.
- **Excessive Wi-Fi zones:** experts believe our ever-increasing wireless internet zones may lead to silent health problems through the radiation emitted.
- **Deforestation and urban developments:** technology makes it easier to clear land, bore tunnels and build homes, but in doing so, parts of the established natural environment are destroyed.