Strategies, techniques and approaches to explore, create and evaluate design ideas

User-centred design:

User-centred design demands that designers employ a mixture of investigative (e.g., surveys and interviews) and generative (e.g., brainstorming) methods and tools to develop an understanding of user needs

Framework process:

- Clear framework
- Needs of the user to control all decisions
- The requirements of the business

Problem solving:

- Ideas developed then evaluated by user
- User needs constantly monitored
- Iterative design development
- Collaboration of designers and engineers

User needs, wants and values:

- How and where will the product be used
- Considered throughout whole design to evaluation stages

Limitations of end user considerations:

- Feedback needs to be appropriate for development
- Views can only affect a small proportion of the market
- Feedback helps refine, not change whole project
- Involve users more in design
- Result of iterative design process (feedback from users)
- Consider whole user experience

- Developed by multi-skilled, multi-disciplinary team (product designers, engineers, industrial designers, ergonomists, sale and marketing specialists)

Methods used to achieve user-centred design standards:

- Apply ergonomic principles for ease of use and comfort
- Use anthropometric data to ensure good 'fit'
- Observe people using products
- Organise focus groups to identify problems with existing products
- Improve the user experience

Circular economy:

A circular economy is an alternative to traditional linear economy

- Keep resources as long as possible
- Extract the maximum value from them whilst in use
- Recover and regenerate products and materials at the end of each service life

Reduce (materials, waste, pollution), Refurbish, Repair, Recycle

Using a plastic bottle with holes in it as a sprinkler

Design for maintenance:

- Safer- less likely to fail
- Reliability- less likely to break
- Efficiency- less pollution (cars)
- Cost- cheaper to maintain vs replace

Right to repair:

Law to protect you from unfair polices that make it difficult/expensive for you to repair products on your own

Systems thinking:

It's the way that keeps reducing inconsistencies between the actual flows of the System, and one's understanding of the System and its flows.

- Each part of the product or system is part of something bigger
- Breaking down a system or product to understand how it works
- Relies on a number of departments working together (concurrent manufacturing)
- Understanding how all parts relate to each other

Flow diagrams and feedback loops help to understand a complex system and identify where changes can be made to improve the outcome (Marginal gains- GB cycling)