

Technology Change and Innovation

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‘The Internet, like the steam engine, is a technological breakthrough that changed the world.’ Peter Singer, Australian Philosopher (Singer, 2010)

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Technology has had a specific impact on society and economies; certain issues are body/self-image and beauty standards, behavioural problems, affected physical and mental health, poor sleep, reduced face to face and emotional interactions and over dependence.

Technology has been found to have a negative impact on users' self-image; multiple studies have been conducted over the last decade where majority of results show the damaging link between technology and self-image.

A 2015 report took 130 female undergraduate students and presented them with either a collection of “Instagram fitspiration images” or travel images. ‘Fitspiration’ is intended to inspire users towards a healthier lifestyle. However, this investigation discovered that compared to travel images the fitspiration content increased “negative mood and body dissatisfaction” and can lead to negative unintended consequences in relation to self-image.

(Vandenbosch et al., 2022) (Tiggemann & Zaccardo, 2015)

More recently, in 2020, a report by the Gender and Sexualities Research Centre at the City, University of London took 175 young women and investigated multiple online areas. It was discovered that:

- 90% use filters or editing on their photos before posting.
- Participants said they often see adverts for cosmetic products.
- Over 90% feel ‘Like other people have more fun than you’
- Participants believe women with disabilities are never shown

One participant said: “We are constantly being told we are not thin enough, not pretty enough, too many spots, not enough boob, not enough bum, too bigger thighs...it goes on and on.”

(Gill, 2020) (Gill, 2021)

Technologies impact on behavioural problems is largely seen in children. A 2019 study discovered that children between the ages of 9 and 10 had increases of behavioural

issues when exposed to higher levels of screen time. Rule breaking behaviour was increased by 5.9%, social problems by 5%, aggression by 4% and reduced sleep.

(Guerrero et al., 2019)

Technology fosters sedentary which does not only impact physical health, but also mental. Sitting down often or for long periods whilst playing video games, watching television, scrolling, or shopping can lead to obesity, type 2 diabetes, forms of cancer, slowed metabolism and early death, occurring to the NHS. Online bullying, comparison, and excessive use of technologies can lead to anxiety, depression, affected mental health, substance abuse, and sleeping difficulties especially in younger people.

(Antonio et al., 2020) (NHS, 2019) (World Health Organization, 2024)

Another issue technology raises is reduced face to face and emotional interactions. Messaging, chat rooms, and social media make it more accessible to connect with others, however, this leads to un intimate connections and reduces essential relationship bonds, as well as increased feelings of isolation and loneliness.

(Johnson, 2020) (VIDA, 2024) (Sharp, 2024)

The impact that technology and innovation has had on the development of economies and societies is not just negative, but also positive. Technology can help aid inclusive designs for disabilities and elders such as mobility cars, visual assistant apps, stair lifts, online patient monitoring smart home devices and online shopping.

Technology improves efficiency in areas such as new machinery for business, new medical devices and equipment and predicting business behaviours. It also provides easier access to information, making learning and research more efficient.

Technology benefits communication in certain aspects like eliminating geographic barriers, language barriers, business and personal interactions and education communication.

(BBC Bitesize, 2019) (VIDA, 2024)

Technology has an impact within the workspace. Theorist Marshall McLuhan who studied media theory spoke of the idea of a Global Village in a 1964 essay. He believed that modern technology would connect people all over the world and created the idea of a global village where people connect and share information and experiences worldwide. As of today, McLuhan's theory is seen in everyday life, especially in the world of work. Employers and employees are able to use different types of media to connect with others who are not physically close, such as email, message, video conferencing, telephone, remote work, and translators (Traub, 2019) Berardi, n.d) (Nombela, 2022).

Job positions are now usually advertised online as well as majority of the recruitment process being online. Many positions require candidates to complete online testing, upload personal information, attach documents, email, or phone about next steps and sometimes video or phone call interviews. This can make the recruitment process less time consuming, faster response and expand reach.

Stock control has become easier through the use of technology. Stock levels can be monitored and recorded using software and can also be reordered automatically using technology systems. These types of systems can reduce human errors, improve accuracy and financial controls.

Technology has impacted product planning in many different areas. Online distribution is now available and is the only form for distribution for many businesses. Marketing is now also hugely online, dissolving forms of marketing such as newspaper, door to door, direct mail. Operational processes have become more efficient and require less staff as machinery is widely used. Product design can be developed using online software, as well as using sustainable innovation and technology in these designs.

Technology has an impact in different areas of family life. Technologies such as social media, messaging, telephone, letters, and video calls gives distant relatives access to connect and communicate. Technology also allows families to enjoy streaming entertainment together or ordering food via platforms such as Just Eat and book family trips conveniently through online travel agencies like TripAdvisor. Platforms like these allow families to not only connect with one another but adopt convivence and foster memories.

Since Covid 19, the number of employees working from home has continued to increase, which can provide flexibility within households and expand time spend with children.

(BBC, n.d.)

Not all technological impacts within families are positive, research by clinical psychologist Catherine Steiner-Adair suggests there are negatives too. Adair states that extensive technology and electronic device usage can expose children to unhealthy values as well as harming every development stage (Steiner-Adair, 2013). Her research shows technology having a negative effect on empathy, attention, and family relationships as children are missing out on critical social skills as body language, facial expresses and social cues are hidden in texting (Steiner-Adair, 2013).

(Tadpatrikar et al., 2021) (Ehmke, 2025)

There has been a switch in how people, specifically families, watch television. Families used to come together and watch live television at a specific time; however, it is becoming less common due to streaming and online platforms. BBC found that around

93% of 16–24-year-olds chose to watch a form of video streaming platform over live television (BBC Newsround, 2024) and young people now watch almost seven times less broadcast television than people aged over 65 (Gerken, 2022). This shows an obvious gap in preferences between age groups, that separates potential family time. The same trend is seen within preference over watching new releases on streaming platforms rather than going to cinemas as a family.

(Coughlan, 2018) (Fatemi, 2022)

Technology has an impact in different areas of leisure, such as supporting hobbies, creating new forms of leisure and being educational. Technology has created new hobbies like video gaming, which has become a massive industry. Newer technology allows video games to be used on the go with devices like Nintendo DS, Nintendo switches and mobile devices, enhancing convenience and access.

Similar to on-the-go video games, kindles were realised in 2007. Kindles are e readers that allow users to read a large range of e-books (Haring, 2023)

Technology allows people to attend art exhibitions, house viewings, workout classes, trade shows etc, through the use of Virtual reality (VR) and live streaming. Virtual events have become increasingly popular since covid 19 and permit people to attend events from all over the world, save money and foster connections and interests.

New forms of leisure have been created by using technology, digital art being an example. Digital art creates a new form of expression and creativity as well as being easy accessed and produces less waste than most traditional forms.

(Unit, 2021)

Referencing at Marshal McLuhan's theory that all technologies and media are an extension of man films would be an example of this. Using this theory, films enhance storytelling, replication, and community, obsolesces books and theatre, retrieves visual and immersive media and reverses on demand streaming, overstimulation, and advertising rather than art/creation.

Technology also has negative impacts when related to leisure. Too much time online on devices can lead to social isolation and in some cases makes it hard to draw a line between leisure and over consumption.

Easy and wide access to different forms of online leisure can act as a distraction in work, school, or social life, making it harder to complete tasks, reinforce procrastination and decreasing productivity.

An emerging technology, artificial intelligence (AI), is raising the public's opinion on potential benefits and negatives, with very mixed views. AI is a machine-based system that performs a task that usually involves human intelligence. Types of AI tools include:

- Chatbots
- Search engines
- Grammar checkers
- Image and content creation
- Voice and music creation
- Scheduling
- Email and administration

(Mannion, 2024) (Rebelo, 2024)

One of the major potential impacts AI could have is job losses, due to its efficiency, automation, cost reduction, and knowledge. Department for Science Innovation and Technology's research suggests that by 2035 around 10 million workers will be in jobs where AI will be part of their role (POST, 2025). Customer service, administration, financial, translators, editors and radio/broadcast presenter jobs are likely to be affected by AI (Young, 2025).

Privacy concerns is a massive impact AI could raise, since it can gain access to large amounts data and can also produce media such as 'deep fakes' that could be used as scams, blackmail, or ruin reputations. A PublicFirst report says that "fake images or videos to hurt someone's reputation is the risk people are currently most worried about." (PubicFirst, 2024) (Sullivan, 2023).

AI uses a significant amount of energy to run their models and systems. An AP and Environmental and Energy Study Institute article states that an AI prompt uses 210 times more energy than a regular google search, and data centres use up to 5 million gallons a day to keep cool, which is around the same amount of daily water demand for a town of 50,000 people (AP, 2025) (Yañez-Barnuevo, 2025).

(Tiwari, 2024)

AI does have some positive impacts one being that it can increase efficiency and productivity making mundane and repetitive tasks more manageable. It can also help with decision making, resulting in more accurate and informed decisions, again increasing efficiency.

AI can improve customer service experiences through the use of chat bots, multilingualism, and automated emails, allowing customers to gain 24/7 access to help. However, some people feel like these platforms lack specification and personal connection.

AI lacks emotion making instances where customers are argumentative easier to handle and resolve. AI also cannot pass on judgement when asked questions that humans might find straightforward, making it helpful for students to ask questions without feeling judged.

(Gibson, 2024) (Pratt, 2024)

Nikolai Kondratiev, a Russian economist, introduced the concept of the Kondratieff Wave in the 1920s which demonstrates a long-term economic cycle which shows high and low growth economic rates from 1819-2015, believed to be influenced by technology innovation (Ganti, 2019) (Team, n.d.). There are 5 waves, with the 6th wave believed to be now.

The 6th wave could be the growth of AI as it is becoming an everyday tool for many people and businesses with 44% of time spent on AI tools occurred during work hours in the UK and AI platform ChatGPT having 800 million active users in of 2025 (AB UK, 2025) (Singh, 2025).

AI in the future could help increase productivity in different areas, however, there is the potential of excessive dependence on AI, with people even saying they would be interested in an AI girl/boyfriend (over a quarter of UK adults under 35) (PubicFirst, 2024).

Overall, technology and innovation has had a range of impacts on society, work, family and leisure and the development of these economies. Technology is always changing and evolving and tools like AI might change the world again in the future.

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