



Tech disruption

Over the past three decades the rapid rise of personal computers, the internet and mobile phones has led to huge changes in how we work, communicate and learn, which some have dubbed a 'digital revolution'.

These technologies have largely been met with enthusiasm and swiftly adopted. However, there is emerging scepticism about certain areas of technology, such as nanotechnology, biotechnology and artificial intelligence, as well as the huge role digital technologies play in our lives. This ranges from debate over unintended consequences and ethical issues, to how we should manage and moderate technology use, as well as deeper concerns about the long-term effects, for example on the cognitive abilities of young children.

As a result some technological solutions could meet resistance in future, perhaps due to being perceived as unviable or socially unacceptable, which could in turn influence regulatory policy and the scaling of solutions designed to meet global challenges.

Implications

- Although data suggests there is growing public ambivalence towards science and technology, outright technophiles and ardent technophobes are still in the minority; most people appreciate the benefits of science and technology while at the same time being wary of the risks.
- There will always be resistance to new technologies being imposed on society rather than developed with society in mind. Transparency around the benefits and purpose of any new technology and its potential applications are critical, along with establishing trusted governance systems that can manage any risks effectively.
- It will be increasingly important to communicate the benefits of science and technology to non-specialists in a clear and upfront manner, and without obfuscating any potential risks. This will mean not only ensuring that those involved in research and development have the skills to discuss their work in an easily digestible manner, but also that media properly understands scientific principles and how to report them – something it has arguably struggled with in the case of climate change.
- Public education that enables citizens to understand and make reasoned judgements about new technologies and scientific developments may also become more of a priority, along with efforts to generate the behavioural change necessary to prevent excessive use of technology in everyday life.

Current trajectory

- While the majority of EU residents (77%) think that science and technology have a positive impact on society overall, 74% agree that developments in science and technology could have unforeseen negative side effects on health and the environment. [1]
- Americans have grown more polarised in their views on climate change in the past decade. According to a Gallup survey from 2014, one in four Americans are not worried about global warming much or at all. This figure has risen steadily since 2001, when 12% of Americans were climate change sceptics. [2]
- Over 70% of South Africans believe that science and technology make their lives easier, healthier and more comfortable. However the majority are also concerned that science makes life change too fast, and that we depend too much on science and not enough on faith. [3]
- While controversial Genetically Modified Organisms have the potential to enhance agricultural productivity, many African policy makers, farmers and consumers are sceptical of their supposed benefits. For instance, the Kenyan government banned all genetically modified imports into the country in 2012 due to concerns about their health effects. [4]
- Prominent members of the scientific community such as physicist Stephen Hawking and astronomer Sir Martin Rees have raised concerns about artificial intelligence, and the possibility of intelligent robots superseding human beings. [5]
- There is emerging concern that prolific internet use is affecting cognitive behaviour and causing attention spans to decline. A long-term UK study (Sigman, 2009) found that during the period 1987-2007, the amount of time that children spent interacting with other people in the family home decreased from six hours a day in 1987 to around two hours per day in 2007. During a similar time period, electronic media use rose from just under four hours a day to approximately eight hours a day. [6]

Footnotes:

1. Eurobarometer: Responsible Research and Innovation (RRI), Science and Technology, European Commission, 2013
2. [Gallup \(2014, April\). One in Four in U.S. Are Solidly Skeptical of Global Warming](#)
3. Reddy et al. (2013) Public attitudes to science in South Africa, South African Journal of Science
4. [Nature \(2012, Dec\). Scientists torn over Kenya's recent GM food ban](#)
5. [Martin Rees \(2015, Jan\). Martin Rees: Robots can enrich humanity - as long as we can keep them under control](#)
6. Boyle, C. & Wurf, G. (2011). Digital Interaction: Are technological advances leading to a loss of social communication? In K. Kelly & S. Richman (Eds). Education for a Digital World 2.0, Innovations in Education (pp. 71-88). Vancouver: Open School Publications, Province of British Columbia.