**Technology and Society: How IT is shaping the Modern Society.**

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**Abstract**

Information Technology abbreviated as IT is a field of computing that deals with the creation, collection, processing, storage, and retrieval of information using digital systems. Information Technology has been with us for the last 30 years, over which it has transformed how societies carry out their activities. The adoption of IT has positively and negatively impacted the society we live in. This paper aims to review how IT has positively contributed to the growth and well-being of our society and some of the negative impacts this technology has created on our society.

**Keywords:** *Internet, society, positive impact, negative impact, information technology, social media*

**Introduction**

The term technology is used to refer to the processes and products that improve society and human life (Wahab et al., 2012). Through the application of technology, society has witnessed better ways of doing things. Information technology encompasses ways computing technology has been applied in human society to generally improve how we process and use information. Information technology has touched every aspect of human life making it possible for society to undertake activities that traditionally were not possible or were time-consuming.

The current society we live in is fully supported by technology ranging from agriculture, biology, health, finance, and engineering among other fields. Information technology is one such field in the broader family of technology that has influenced all aspects of human life. It is through information technology that the world has been converted into a global village where you can work virtually, get services virtually and even share information with anyone from any part of the world. Advancements in information technology have changed the world from being a physical world to a knowledge or information-based wealth-creation economy (Kiget & Mugeni, 2014).

Through information technology, society has witnessed both its positive and negative impacts. As society works to mitigate the negative impact of the application of technology in our daily lives, it is worth looking at how this technology has contributed to society’s well-being.

**Positive Impacts on the Society**

Since the inception of information technology, society has witnessed its wide range of applications in human life. This ranges from communication, health, banking, education, and many other fields. ICT has transformed how services are offered in different fields and made it easier and possible for people to get those services which could otherwise be very expensive or unavailable if ICT was not in existence. Some of the positive impacts ICT has had in society are described below.

1. **Improved Communication and Social Connections**

ICT has revolutionized how people share and exchange information. Inventions like the Internet and social media took the world by storm by fully changing how communication is done. Apart from making communication cheaper and more affordable, ICT made it possible for people to exchange information from any part of the world and just from their comfort regardless of their geographical location. Development and enhancement of social media sites like Facebook, Twitter and Instagram among others made it easier for people to meet virtually, share information, form communities, and collaborate on several aspects (Horváth et al., 2022).

It is through ICT that we can use mobile phones to communicate using cellular networks or over the Internet for video and audio communication. For example, social media applications like WhatsApp and Facebook allow video and audio calls using the Internet. More and more people currently have access to mobile phones than ever before and the number of people accessing the Internet has steadily been increasing. This has also been accompanied by higher internet connection speeds which have made it possible for people to seamlessly communicate.

Improved communication has a positive impact on relationships and the social well-being of people. Through ICT, society can create and maintain relationships with its members even if they are thousands of miles apart. Long-distance relationships have been made possible through the Internet. Dating and matchmaking sites have allowed potential partners to meet, share and create new relationships. This could not have been possible without ICT. Social media sites like Twitter, Facebook, YouTube, and others have made it possible for society to quickly access and use information for decision-making. Through the trending topics, it is not possible to know what is happening across the world just from your comfort. All the social media sites allow live coverage of events hence further making the above possible.

1. **Healthcare Advancements**

Advancements in ICT and its adoption in the health sector have enabled clients seeking health services to get them easily, efficiently and at an affordable rate. It is possible for patients to consult doctors and service providers across the border by using technology. Using social media, medical professionals can locate their clients, and provide information on the services they offer hence popularizing these services (Rana et al., 2020). On the other hand, clients can locate specialized medical professionals using the Internet and social media, book and receive the services virtually (Heponiemi et al., 2020). Virtual reality, one of the products of ICT has made it possible for medical students to undertake virtual surgeries and training at a low cost without involving human subjects.

Through ICT, people can buy, order, and get medication delivered just right to their doorsteps. We have witnessed the use of Artificial Intelligence (AI) in hospitals to help in predicting clients likely to miss their appointments and clients likely to be infected with co-morbidities. This has been made possible by the application of ICT in the healthcare industry as well as the use of machine learning algorithms to learn and predict. Using wearables and the Internet of Things (IoT), these devices can collect health-related information from people and share the same with doctors. This has made earlier issue detection and interventions possible (Awotunde et al., 2021).

ICT has enabled the collection and digitization of health-related information. Coupled with AI, it is now possible for people to get individualized medical attention hence improving service provision. With proper mechanisms put in place, ICT has made it possible for clients seeking medical attention to easily transfer their data with them as they seek to get services in other facilities. Advanced data analysis tools have made it possible for public health officers to easily detect public health-related issues earlier and put mechanisms in place to combat further spread. For example, ICT was highly used to inform the public and health experts on the spread of COVID-19 and made it possible to map and strategize mechanisms to combat further spread (Zaman et al., 2020).

1. **Increased Efficiency and Productivity**

The use and adoption of ICT in society has improved efficiency in the workplace, hence increased productivity. Automation of tasks through robotics, artificial intelligence and drones has made it possible for people to save time doing repetitive tasks. Application and use of software systems automate business processes in organizations hence increasing efficiency and saving time making it possible for analysis and use of data to make decisions (Kromann & Sørensen, 2020). Higher productivity means better economic growth and increased well-being of society.

Using automated tools like IoT, organizations can detect anomalies easily, communicate and have the same rectified earlier. For example, using IoT technologies in oil distribution companies allows earlier detection of leakages and the taking of necessary actions before it can culminate into a disaster.

1. **Improved Humanitarian Activities**

ICT has made the provision of services to the underprivileged and those affected by calamities possible. Using drone technology, humanitarian organizations can send lifesaving resources to people faced with disasters like floods and drought in areas that are not easily accessible by humans. Those affected by calamities have a platform to share the real situation on the ground to help authorities find the best way to support them. This is made possible using social media tools. ICT is also used to coordinate resource mobilization and donations to support and help those faced with calamities (Bajoria, 2011). Twitter through the hashtag has been used to coordinate humanitarian and social activities.

1. **Creation and Easier Access to Opportunities**

Technology has created several new opportunities for society to make a living. Through social media sites like YouTube, TikTok, Instagram and Twitter among others, members can make a living by doing what they love or have a passion for. On YouTube, content creators can create, share, and monetize their content. Same as many other social networking and micro-blogging sites. Through social media communities, users can link up with like-minded people and collaborate on several projects.

Other social sites like LinkedIn allow employers to post job opportunities and source talents to work in their organizations. Likewise, potential candidates can easily search locate and apply for several job opportunities online (Rani, 2016). ICT has made it possible for people to work from home thanks to the Internet and the development of virtual meetings and working applications such as Zoom, Google Meet, and Teams among others that allow people from any location to meet, discuss and deliberate on several issues. Working from home has generated great opportunities for talents as anyone is able to work from any place and this saves time and minimizes operational costs (Cordova-Buiza et al., 2022).

1. **Improved Transport Sector**

ICT has revolutionized the transport sector right from booking and tracking vehicles to autonomous self-driving vehicles. Autonomous vehicles have the potential to eliminate carbon emissions, hence reducing global warming. In the transport sector, location-aware mobile applications like Uber allow users to locate nearby taxis and be able to book one.

The development of software applications like Google Maps has revolutionized the transport industry by enabling users to locate their destinations and navigate there using the shortest paths as well as alternative routes (Gössling, 2018). Through technology, one can know if a given path has high traffic and hence be able to avoid it. Car tracking is another development that has been successfully powered by ICT. It is possible through technology to track and locate where a car is and be able to turn it off among other controls. Car tracking has improved the security of vehicles as one can locate and manage their cars even if they have been stolen.

1. **Improved access to Education and Information**

The Internet has made it easier for society to easily access education and information. The Internet has a wealth of information that people can access and use mostly for free or at a low cost from any location. The development and use of mobile smartphones have made it possible for people even the underprivileged to quickly access and use information. The Internet has made it possible for learning institutions to offer their courses virtually through e-learning platforms. With e-learning, institutions can reduce operational costs since they do not need to worry about space to accommodate these classes and consequently, this is passed to learners who can undertake cheaper courses. It is now possible for students to study in any institution even if it is physically thousands of miles away courtesy of the Internet (Chisango et al., 2020). Students can collaborate and learn from each other without worrying about their physical location and the distance between them.

In research, ICT has made available millions of scholarly articles available for use making it easier and possible for researchers to use this information in carrying out scholarly work.

1. **Easier Access to Financial Services**

ICT has revolutionized the financial sector through the provision of mobile and Internet banking services. As opposed to the traditional way of accessing financial services and information, ICT has even made it easier for one to send and receive money from any location, and get notifications of any transactions, hence improving security (Alshubiri et al., 2019). Currently, financial institutions are using social media sites to engage and collect feedback from users about their products. Such feedback is very important as it helps in improving services given to customers. Using ICT has reduced queues in banking institutions and increased efficiency in service delivery.

1. **Entertainment and Leisure**

The entertainment industry has greatly benefitted from the adoption and use of ICT. Social media sites like YouTube, Facebook, Netflix, Instagram, and TikTok have made it easier for content creators to create and share their content with the world. The Internet offers several video and audio editing tools that have allowed creators to quickly edit and work on different projects and at the same time make high-quality artistic works.

Other services like online ticketing and booking have made it easier for people to book movies, concerts, other entertainment events, hotels, and flights. Social media sites are used by artists and content creators to engage their fans and promote their artistic work so they can directly engage with their customers. ICT makes it easier for society to find places of interest and preview those places before booking or travelling there.

**Negative Impacts on the Society**

Though ICT has greatly contributed to the well-being of society, it is worth noting that it has also brought negative effects hence negatively impacting society. Some of the negative impacts of ICT on society are as below.

1. **Ethical Issues**

ICT has led to an increasing digital divide. The underprivileged people in society are unable to use technology since they do not have the necessary resources to purchase ICT equipment like mobile phones, wearables, or computers. They also experience poor Internet connections in these places hindering them from fully reaping the benefits of ICT.

Other developments like AI have raised a lot of ethical considerations as it could lead to unfairness through automated decision-making that could further widen exclusivity. AI systems need to ensure fairness, explainability and minimize harm to humans. ICT enables fast sharing and dissemination of information hence putting in place mechanisms to protect intellectual properties that are a bit complex.

1. **Data Security and Privacy Concerns**

ICT has enabled enormous collection, processing, and storage of information through computing devices. Privacy of such data is a big concern in the digital space. Digital systems must ensure the privacy of this data by ensuring data is only used for the purpose it was collected while taking into consideration personal data protection. It is important to ensure systems maintain the required standards of data security by infusing robust security frameworks to guarantee confidentiality, integrity, and availability of information. Sensitive information stored within the digital space like financial, health and other data must be protected from unauthorized access.

1. **Fake News**

Fake news includes misinformation and disinformation. Social media has helped the spread of fake news by allowing people to easily share information. This can be through Twitter’s hashtags, Facebook’s posts, and even easier broadcasting of messages through WhatsApp and other platforms. ICT has not managed to put in place mechanisms to filter out such fake news and ensure it does not reach people. ICT has allowed its users to create and distribute viral content that is aimed at reaching millions of users by providing its users with tools like AI that have enabled the creation of imaginary content including videos and images that can easily go viral.

Media literacy is key to ensuring fake news is easily detected by users and hence not shared. Using AI can help fight fake news as algorithms can be able to detect and block the sharing of fake information. However, mechanisms should be put in place to ensure these AI systems meant to detect fake news do not bring other biases.

1. **Social Isolation and Addiction**

Over-dependency on the Internet and ICT can easily lead to social isolation and declined interpersonal interactions. This is made possible as ICT offers a range of services including leisure and entertainment services that make people fully rely on them hence not able to have face to face interactions with others. Other technologies like virtual reality have even made interactions difficult as people are now interacting with virtual objects in virtual environments. Such cases make people disconnect from real life leading to feelings of loneliness that can lead to mental issues including depression. Over-reliance on social media may lead to addiction as users find it difficult to live a normal life in the absence of ICT.

1. **Environmental Concerns**

Since its inception and widespread use of ICT in the 1990s, billions of electronic devices including mobile phones, laptops, tablets, computers, data centers, and others have been developed and used. As of July 2023, there are approximately 4.32 billion active internet users worldwide (Howarth, 2023). All these users have one or more electronic devices that emit carbon elements into the environment. The overall effect of this is global warming. This calls for good strategies to safeguard the environment. On the other hand, there is a need to develop efficient disposal strategies to ensure these devices are safely disposed of without polluting the environment.

1. **Job Losses**

As far as ICT has created new jobs, chances are high that other people are likely to lose their jobs. Inventions like AI, Autonomous vehicles, drones, and robots are replacing humans by automating repetitive tasks (Sun, 2021). Apart from job loss, there is an increased need for re-skilling to align skills to the current job needs.

1. **Health Issues**

Prolonged use of smartphones and computers can lead to health issues like mental health, obesity, cardiovascular and poor posture due to prolonged periods sitting in front of computers or smartphones. Eye dryness and vision problems are other issues that are related to prolonged use of computing devices. As ICT is becoming more and more engraved in our lives, we must take note of these issues and work towards mitigating them.

**The Future of IT and How it is Likely to Affect Society**

The field of Information Technology is always evolving at a fast pace. What is relevant now may not be relevant in the next few years. Some of the technologies that will be powering IT in future include Artificial Intelligence, the Internet of Things, Virtual Reality, Blockchain and 5G and 6G technologies among others.

AI will revolutionize how society operates as many tasks performed by humans, including those performed by experts, will eventually be done by machines. Several industries will be affected by this development including the job market as some new jobs like AI and Machine learning and training experts will come to be and at the same time, other jobs which will be automated by AI will disappear from the market. With fewer jobs for people to do, this could widen the gap between the haves and the don’ts. This may lead to a rise in crime levels among those who will be displaced by AI. There will be increased efficiency since AI systems will be able to do more as compared to humans with increased accuracy. As AI systems take over, there will be increased interest in ethical considerations of these systems and how they will be interfacing with the community to ensure they work for society.

The digital divide is another aspect that will be pushed further by continuous evolution in the IT industry. Since accessing and using such systems means having access to the Internet and devices that will connect one to the Internet, it is, therefore, possible that those who will not be able to access the Internet will be cut off from benefiting future developments in technology. Such developments will push governments and tech companies to develop and upgrade rural areas with better connection speeds.

Privacy and data security concerns will continue rising as an increase in internet coverage and the use of IoT will make more data available online. This will likely see countries, organizations and individuals coming up with regulations and innovative security ways to ensure there is data privacy and proper consenting is done before any information is extracted from individuals. It will be harder for organizations to get and use data from individuals due to such policies. Organizations will be pushed further to refine their data use policies.

In future, there will be increased adoption and use of IoT as more and more devices will be interconnected. There will be the Internet of Everything (IoE) as every device will be able to communicate with each other as well as with people. In the future, the already smart devices will be engraved with AI capabilities enabling them to make intelligent decisions. Such devices will not only be collecting data from the devices they are fitted in but also analyze such data to make “smart” decisions just like humans. Such advancements will increase the utilization of limited resources like electricity among others. With such sensitive information available on the Internet, this development will further push the need for improved data security.

Robotics is another field whose application is likely to increase in future through its integration with AI technologies and enabling robots to make smart decisions. The deployment of such robots in critical missions like exploring space, and medicine among others will be possible. Already we have witnessed their application in autonomous vehicles, and we stand to witness more of their application in other fields than the ones mentioned above.

As technology continues to advance, IT will make it even more possible for people to work remotely and from the comfort of their homes. This will open an array of opportunities, especially for both developed and developing countries and companies will be able to hire from any part of the world and at the same time job seekers will be able to easily locate jobs including virtually. Working from home as commonly referred has several advantages including reduced costs and time to travel to the job and back, reduced rural-urban migration, and reduced traffic allowing families to stay together hence strengthening family ties. As we know, in the African set-up, a family is the basic unit of any society hence this will come in handy to enhance the ties.

On the other hand, working from home may have negative consequences as it is probable that some homes do not have a conducive office-like environment that will make employees productive. The lack of a strong Internet connection to enable collaboration, and disturbances from the family can also lead to one having negative experiences working from home. It could also lead to reduced face-to-face interaction with colleagues and prolonged use of computers that could have negative health-related consequences including depression, eye dryness and others.

Environmental concerns will continue to remain a challenge even in future as there is a likelihood that more computing devices will be developed and used. Their proper disposal will remain a challenge as well as the development of data centers that will store the enormous amount of data generated by such systems.

**Conclusion**

It is worth noting that IT has positively impacted our society and changed the way we live and socialize with others. With many positive impacts and contributions to society, it is worth noting the negative impacts society has experienced because of IT. As a society, we should recognize and work towards minimizing the negative impacts and using IT to curb these negative experiences. Correct use of IT will be important in ensuring progress in society. Some of the negative impacts call for a collaborative approach by policymakers, organizations, and individuals to ensure we all work together to make IT work for us in all aspects.

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