Ethics and Morality in the Fourth Industrial Revolution
Rethinking Ethics, Values and Innovation in the Digital Age

The Fourth Industrial Revolution (4IR) is fundamentally changing the world, and technological advances such as artificial intelligence (AI), machine learning (ML) and digitization are increasingly affecting how people live, work, communicate, learn and play. Accordingly, a new set of moral, ethical and legal values must be codified and become the global norm.

Although 4IR technologies undoubtedly offer immense benefits and opportunities, they also raise some profound ethical and moral questions, such as:[1]

- Should a driverless car value the life of its occupants over the lives of pedestrians?

- Where does the responsibility lie if an autonomous vehicle is involved in an accident or if a robot injures someone?

- Should wearable fitness tracker activity be used against a defendant in a court case?

- Should drones be allowed to become the new paparazzi?

- Can a human gene be patented?

These technologies have ushered in a new era of disruption with uncertain, unintended and unforeseen global socioeconomic consequences. These disruptive technologies will have a profound effect on the future, and it would be irresponsible not to consider how these technologies are developed and deployed in real-life settings.[2]

Definitions

"Ethics" can be defined as a set of beliefs about right and wrong behavior within a society and that ethical behavior conforms to generally accepted norms, many of which are almost universal.[3] However, although nearly everyone would agree that lying and cheating are unethical, opinions about what constitutes ethical behavior can vary dramatically. One of the ethical dilemmas associated with new technologies is robots and artificial intelligence (AI) technologies replacing humans in work, which could lead to "technological unemployment." To combat this, humans are challenged to intentionally develop and integrate positive values into new technologies.

The term "Fourth Industrial Revolution" was coined by Klaus Schwab, the founder and executive chairman of the World Economic Forum.[4] The Fourth Industrial Revolution, which has also been referred to as 4IR or Industry 4.0, has been described as a way of blurring the boundaries between the physical, digital and biological worlds.[5] The fusion of these worlds is one of the hallmarks of the 4IR, along with the growing use of new technologies such as AI, cloud computing, bid data, autonomous robots, 3D printing, the Internet of Things (IoT) and augmented reality (**figure 1**). 4IR is unprecedented in its speed, its all-embracing nature and its global spread.
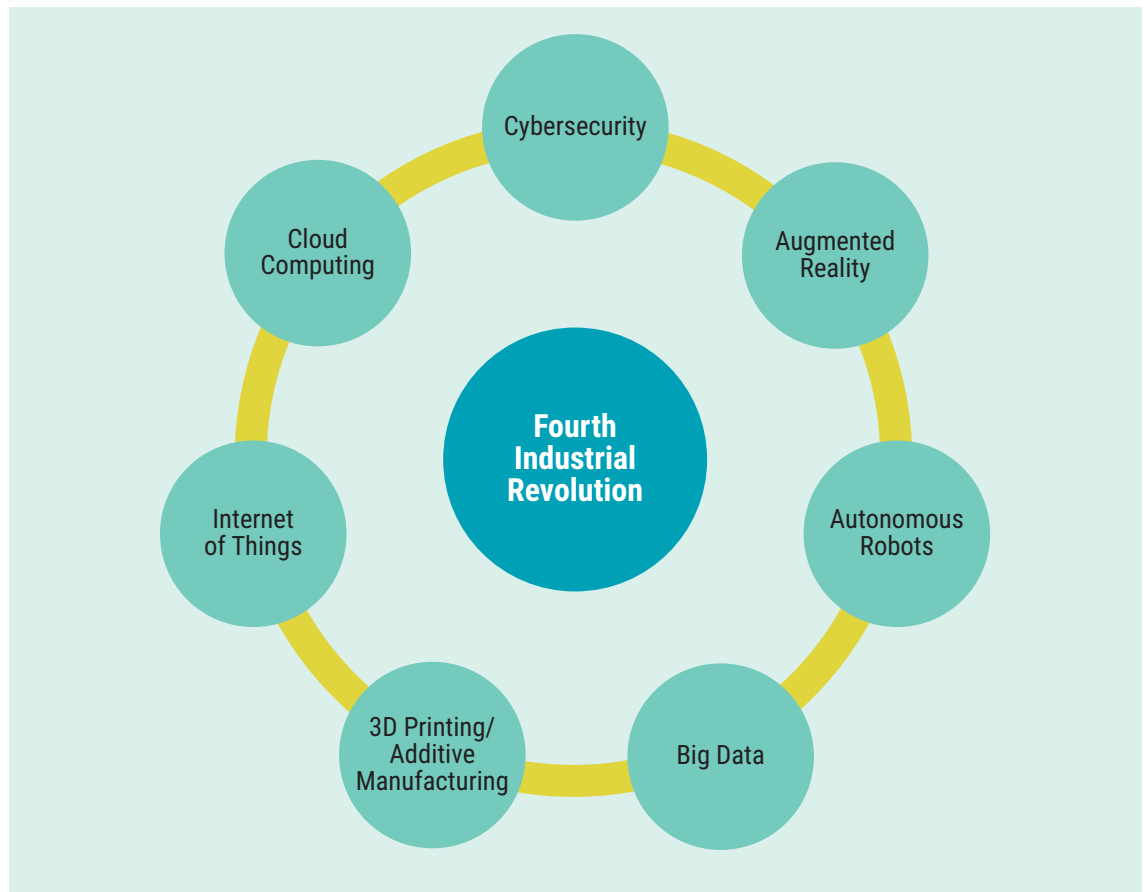
Moral and Ethical Imbalance

Ethics and accountability play a crucial role in addressing the imbalances in society. A 2019 study

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Figure 1—Technologies of the Fourth Industrial Revolution

Cybersecurity

Cloud Computing

Augmented Reality

Fourth Industrial Revolution

Internet of Things

Autonomous Robots

3D Printing/ Additive Manufacturing

Big Data

by IBM revealed that C-suite executives either are unprepared for the changes associated with the 4IR or do not understand the magnitude of them. These executives believe that data responsibility is the most important ethical issue related to AI, which implies that they are more concerned with the impact on their respective enterprises than the effect on broader society. In the same study, 38 percent of the chief human resources officers surveyed indicated that their enterprises have an obligation to retrain or upskill workers impacted by AI.[6]

AI poses a real challenge to the workforce. Business executives need to see the bigger picture and recognize their ethical, moral and legal obligations to do the right thing. Governments around the world also have an active role to play by enacting legislation related to AI ethics and data transparency.[7]

An AI system called Isaak has been used by some enterprises to monitor their employees' behavior, including who they email, what files they access and who they meet. The Isaak system reportedly gathered data on more than one billion actions, which, in turn, it used to pinpoint "central individuals within a network" to better allocate workloads and responsibilities, thereby improving the overall workplace environment by reducing stress. Other benefits of this type of technology include driving change by identifying "influencers" in an enterprise, detecting potential cyberthreats, and enhancing well-being by identifying the victims and culprits of email overload. It can also be used more widely as a tool to help enterprises understand how employee behavior affects performance.[8]

These are all positives, but it is necessary to also consider the ethical implications of this type of technology. Do employees trust their employers to implement a tool that measures their productivity

against that of their colleagues and monitors how many minutes they spend away from their keyboards? Trade unions have warned that systems such as Isaak may increase pressure on workers and cause workplace distrust.

It is often believed that technology itself is incapable of possessing moral or ethical qualities. Alternatively, some believe that each piece of technology is endowed with such qualities by those who developed and designed it and those who decided how it should be used.

The ethical implications of 4IR technologies are real and serious. Ethics underpin good governance, and ensuring an ethical culture is an important objective for both boards and governments. Leaders across all sectors must set, model and communicate the ethical use of technology and encourage buy-in from employees and other stakeholders by allowing them to share their ideas on the subject.

Recommendations

The following steps may help leaders move in the right direction:

- **Develop a moral compass**—Leaders need to deeply understand their own moral values and ensure that they are living and breathing them if they want their employees to follow their example.

- **Set the tone at the top**—If the executive leadership does not consider ethics a priority, it will be difficult to get the rest of the enterprise to do so. The C-suite should not only emphasize the importance of ethical considerations in the usage of technology but also encourage colleagues to embrace an ethical impetus at every level of technology development and to express their concerns when they see a problem. This approach will help the C-suite accurately map the moral foundation of future generations.

- **Iterate the policy**—4IR technologies are rapidly changing, and policies need to keep pace. Just as government regulations are addressing drones, autonomous vehicles and smart cities, enterprises should establish touch points to ensure that their ethics policies keep pace with the rapidly changing technological environment.

- **Nurture a culture of psychological safety**—The C-suite should create a culture where people are not afraid to speak up and challenge unethical behavior. It starts with clearly communicating policies and guidelines and leading by example, but it also includes giving the workforce a voice in the discussion. As senior executives work out strategies to integrate these technologies into every facet of the enterprise, it is important to provide employees with avenues to express their concerns.

- **Join the ethical debate**—C-level executives should get involved in the ethical debate outside of their enterprises if they really want to make a difference and take responsibility.

Conclusion

As the world enters the digital age, a more grounded approach to technological development is required to ensure that organizations do the right things from an ethical perspective. Leaders and

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managers are expected to be well informed of the technological developments of the 4IR and their impact on employees and society at large. In addition, 4IR requires organizations to be compliant and avoid any unethical practices including sidelining employees in favor of a machine.

Failure to be proactive in this regard risks losing power to machines and altering course of humanity without fully understanding the consequences. It also risks creating massive inequality between the "techno super-rich" and a large underclass. To avoid this outcome, executives across all sectors who are looking to benefit from these technologies should ensure that the proper policies are in place and being adhered to by their organizations.[9] Executives should ensure that they make ethics a strategic pillar and monitor adherence to these policies on an ongoing basis.

Endnotes

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9 *Ibid.*