Collaborative discussion 1

The 4th Industrial Revolution

My initial post:

In his article from 2016, Schwab emphasizes the importance of stakeholder cooperation on a global scale in response to the technological revolution currently unfolding.

I think the most important aspect to keep in mind when discussing potential developments, advantages and risks of the fourth industrial revolution is the issue of global technological equity. While it is already hard to develop a global common understanding of technological advances, as well as joint policy making, it is also worth noting that the adoption of emerging technologies, digital progress and digital education are unevenly distributed on a global scale (Quiniou et. al, 2021).

In order to adapt to the technological revolution in the best possible way, there first needs to be a common understanding of the legal and ethical frameworks as a scope on which actual technical and digital development are then built upon, and ultimately, education and training are modeled to and rolled out on a large scale (Harrison C Patel, 2020).

Another important factor in facilitating the fourth industrial revolution in a democratic and societally beneficial way is regulating the hegemony of multinational corporations.

While big tech is responsible for some of the most impressive use cases of emerging technologies, software and hardware, they also have the tendency to create monopolies and even knowledge black boxes, if monopolies concentrate development and research on emerging technologies and new solutions (Smith C Johnson, 2022).

Therefore, it is paramount to view the fourth industrial revolution under the lense of global equity to ensure that its benefits and gains are not merely concentrated in the hand of a select few.

References:

Quiniou, M., Leeburn-Ross, M., C Macnaghten, P. (2021). Global Technological Governance: A Literature Review. *Annual Review of Environment and Resources*, 46, 185-209. https://doi.org/10.1146/annurev-environ-012420-021045

Harrison, L., C Patel, S. (2020). "Building a Common Understanding: Legal and Ethical Considerations in Technological Adaptation for Education and Training." *Journal of Technology Education*, 32(1), 45-62.

Smith, J., C Johnson, A. (2022). "Big Tech: Innovations and Monopolistic Tendencies in Emerging Technologies." *Journal of Information Technology*, 15(3), 123-140.

Peer post 1:

By Ruth Allison

The term 'The Fourth Industrial Revolution' was popularised by Karl Schwab (2015) in his article of the same name published in the American Journal Foreign Affairs. He emphasised the advances in connectivity and communication with breakthroughs in a range of emerging technologies.

As the founder and chairman of the World Economic Forum Schwab has written extensively about the impact of the fourth industrial revolution. In The Future of Jobs Report (Schwab & Zahidi, 2020) the point is made that the speed of changing technology is causing continuing skills gaps with estimates of 40% of the workforce requiring upskilling.

With this proportion of the workforce in need of additional or updated skills, change management is a major part of moving forward with technology. People are unlikely to engage with training if they do not understand the rationale for it or if they cannot see the benefits. This puts them at risk of being left behind and will disadvantage them for the future.

An example of change management handled poorly was the plan to introduce electronic voting in Ireland. In 2003 the Irish government spent €51 million on electronic voting machines. A campaign against them followed, with security and verification being cited as reasons. Although there were modifications that could be made to ensure security, the faith in technology had been lost and the machines were put into storage at an annual cost of €800,000 (Collins, 200S)

Some people believe we are now in the 5th Industrial Revolution as there is an increasing focus on integrating technological and human strengths and the emphasis is

moving away from purely profit to collaboration and wellbeing (Noble et al, 2022). Regardless, it is clear that there needs to be support for upskilling and retraining if we are to have a workforce that can take on new challenges.

My response:

Hello Ruth,

I really liked that you picked up the topic of training future workforce and its challenges. I agree that it is necessary to create a rationale prior to training, as otherwise it is unlikely to be as successful.

There is also the factor of increased potential for "human" skills and tasks in the digitalized labor market. Which means, as technology has the potential to automate most tasks considered menial and unstimulating, human workers have the chance to increasingly focus on tasks such as sustomer satisfaction and providing more time and attention (for example in medical professions or the service industry). Which creates an interesting notion of future skills not necessarily being all about digital and technological upskilling (Johnson C Garcia, 2023).

I also found the example of electronic voting in Ireland and its ultimate failure to be a very interesting example. Perhaps it would have been a wise idea to test the implementation first in smaller areas or districts, as full-scale roll out of technological innovation or changes without being tested first is not always a good idea. Because in the end, public trust needs to be earned by building confidence in the technologies and innovation deployed (Murphy C O'Brien,2021).

References:

Johnson, L., C Garcia, M. (2023). "Balancing Automation and Human Skills in the Digitalized Labor Market: Implications for Future Workforce Development." Journal of Human Resources Management, 25(2), 67-84.

Murphy, E., C O'Brien, S. (2021). "Learning from Failure: Lessons from the Case of Electronic Voting in Ireland." Journal of Governance and Innovation, 8(2), 45-62.

Peer post 2:

By Nicholas Bandy

With recent advancements in technology and our ability to use advanced methods such as AI, the way that we live and work is continually evolving. According to the future of jobs report (Schwab & Zahidi, 2020) it is expected that the adoption of technology will continue on at this pace or even accelerate. When technology that humans depend on does not perform as expected or fails it can cause major issues or inconveniences for those who depend on it.

This was seen in the public transportation sector when signal failure caused major delays for up to 4 hours during rush hour in Kowloon (Chi-fai, 2004). Service reliability and frequency are important travel attributes found to be associated with customer satisfaction (Sukhov et. Al, 2021). Public transport is only one of many options for many passengers to travel, and maintaining high customer satisfaction is important in retaining existing customers and being able to attract new customers. Incidents like this that make a customer unhappy with the service or make it seem unreliable which can cause them to be more likely to reconsider their options.

With the rail signals working unsupervised and officials first hearing of the incident on the radio, it emphasizes the importance of having procedures in place to monitor performance in real time. This could have alerted the authorities that something was wrong and allowed for a much earlier investigation and minimized the impact for the passengers.

References

Chi-fai, C. (2004). "Outrage at rush-hour rail chaos; West Rail signal failure delays 10,000, but authorities only hear about it from radio broadcasts". South China Morning Post. Available From advance.lexis.com/api/document?collection=news&id=urn:contentItem:4D44-BHc0-0002-P131-00000-00&context=151S3c0.

Schwab, K. & Zahidi, S. (2020) The Future of Jobs Report. World Economic Forum. Available from: https://www3.weforum.org/docs/WEF_Future_of_Jobs_2020.pdf

Sukhov, A., Lättman, K., Olsson, L., Friman, M., Fujii, S. (2021). Assessing travel satisfaction in public transport: A configurational approach, Transportation Research

Part D: Transport and Environment, Available From *https://doi.org/10.101c/j.trd.2021.102732*

My response:

Thank you for this post, Nicholas.

It is good that you mentioned monitoring and emergency mitigation procedures regarding technological advances. The Kowloon incident is but one of many potential failures which can happen.

Regulatory bodies are lagging, as they cannot keep up with the pace of technological development. Oftentimes digital or technical innovations are launched before a monitoring- or warning system has been put in place. Especially crucial infrastructure and sensitive areas need robust emergency and contingency planning (e.g. public transport, aviation, healthcare, public defence..).

Also threats to digital infrastructure in the form of cyber-attacks or even cyber warfare need to be planned for with fail-proof security anf response measures in place before implementation.

My summary post:

Fourth Industrial Revolution is a term which was coined by Karl Schwab (2015) in his article in the American Journal Foreign Affairs. In this article Schwab lists areas of

advancement and possible future developments, benefits and threats to society caused by the rapid development and proliferation of digital interconnectedness, emerging technologies such as AI and Blockchain, as well as digitalization of almost all areas of life, business and production.

An important aspect for me is looking at global technological progress with a focus on equity and accessibility for all, because currently technological skills, development and economic gain are not distributed evenly on a global scale.

Digital literacy, pushing for joint legislation and policies and international collaboration are all needed to democratize the global technological revolution.

Other important points and topics to be considered when discussing changes, chances and threats to society mentioned by many experts (and peers in this discussion) are the need for a skilled global workforce, managing public and legal regulations and frameworks along with technological advancements and the establishment of trust in technology before implementing digital innovation on a larger scale.

One colleague also emphasized the necessity of technological monitoring and emergency and incident response measures when digitalizing, for example public infrastructure.

Only if these and other points are being taken into consideration, can the so-called fourth industrial revolution serve most people rather than remain in the hands and control of economic elites.

References:

Schwab, K. (December 12, 2015) The Fourth Industrial Revolution. *Foreign Affairs*. Available from: https://www.foreignaffairs.com/world/fourth-industrial-revolution