COLLABORATIVE DISCUSSION 1:
THE FOURTH INDUSTRIAL REVOLUTION

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CONTENTS

MY PEER RESPONSES TO OTHERS

Peer Response: To James Adams (2024)

James, firstly, thank you for your insightful initial post on Schwab's (2016) study of the Fourth Industrial Revolution, and repercussions for the "CrowdStrike Disruption". I was lucky to have changed my flight from that Friday to earlier in the week otherwise I would not have seen my father before he died.

While you cover the sectors, UK economic impact, and interconnectivity as a risk area, your analysis would benefit from academic sources. Although I was unable to find anything in Google Scholar on the smaller UK media incident I covered, CrowdStrike's global and far-reaching effects have a range of academic articles, although due to the recency, several are preprints.

Ogundipe and Aweto (2024) explicitly mention interconnected technologies and identify the root cause as a non-malicious faulty update due to a logic error. They explain that a manual recovery process was time-consuming to resolve the issue, and that development, deployment, testing, validation, redundancy, and backup are key, alongside communication and collaboration, all similar to the recommendations for the media issue I covered.

Further supporting your concerns, Abdelkarim (2024) concludes that data localisation would help address the issues raised by a foreign technology company managing and storing state data. Although, in my personal experience in a global role, I have seen a trend toward state-focused data restrictions expanding to embrace cloud

computing because of Artificial Intelligence. This contradiction in objectives might

also be an interesting area to explore.

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Peer Response: To Ben Zapka (2024)

Thank you, Ben, for your initial post which raised points from Schwab's (2016) evaluation of the Fourth Industrial Revolution and then exemplified risks of cloud computing with the CrowdStrike update.

Your analysis would benefit from more academic research. The global and far-reaching impact of CrowdStrike means that several papers are available through Google Scholar, although some are preprints given the event's recency.

Ogundipe and Aweto (2024) further elaborate on the issues accompanying interconnected systems. They identify the root cause as a non-malicious update and describe the manual recovery process alongside recommendations to address, many of which should be standard practice for cloud deployments. Abdelkarim (2024) goes as far as to suggest a return to data localisation. An understanding of the issues may help create a stronger link to the Fourth Industrial Revolution.

I almost wrote my post on the same topic, as I luckily moved my flight to an earlier date. Had I not, CrowdStrike would have kept me from seeing my father before he died. These personal costs should be remembered alongside the monetary economic impact. It is worth mentioning that Haranas (2024) estimates of $5.4 billion relate to only direct costs to Fortune 500 companies within the United States (U.S.) economy. Direct, Fortune 500, and U.S. are key limiters here. Your point on lawsuits is a good one for secondary impact of reputational damage, however, also describing the customer implication side would present a more balanced analysis.

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PEER RESPONSES TO ME

Peer Response: From Linga Murthy Kanuri (2024)

The post submitted by Maria offers an informative analysis of the Fourth Industrial Revolution and its risks and challenges as opposed to the Fifth Industrial Revolution (Schwab, 2016; Ziatdinov et al., 2024).

Due to the incorporation of technologies such as the IoT, AI, and even robots in the fourth industrial revolution, many business organizations need help knowing which point to come in (Schwab, 2016). Putting up new equipment and training the employees is a relatively expensive investment (Ziatdinov et al., 2024). However, the preliminary estimates can sometimes be very imposing for small and medium-sized companies. Retrofitting new systems with stubborn old legacy systems can also take much work. The more devices go online, the higher the security threats are and the more imperative it is to secure information. (Krafft, 2020)

The event that occurred at Red Bee Media is a perfect illustration of the fact that even the most high-tech and complicated equipment can let people down. The circumstances showed notable areas for improvement in the disaster recovery policy and disaster communicational strategy. (Channel 4, 2021; Ofcom, 2022).

For example, the Fifth Industrial Revolution, or Industry 5.0, will involve more participatory clamouring for partnerships between men and machines to enhance the ability of investments to be agile and resilient (Ziatdinov et al., 2024). Exploiting machines will not only enhance production but also promote the safety and

dependence of the organization by reducing the impact of risks (Schwab, 2016).

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4) Schwab, K. (2016). The Fourth Industrial Revolution. Geneva: World Economic Forum.

5) Ziatdinov, S., Smith, J., & Richards, L. (2024). The Rise of Industry 5.0: Human-Machine Collaboration and Its Challenges. Journal of Emerging Technologies, 12(1), 45-67.

Peer Response: From James Adams (2024)

Good evening Maria,

Your post provides two good examples of risks related to industry 4.0 technologies and automation.

The issue of the fire suppressant system activating, despite no actual fire, highlights the potential for unintended consequences in automated systems. Whilst fire suppression systems cause less damage than fire, this example shows the cost and disruption that can be caused by a false alarm.

Interestingly, industry 4.0 technologies, including Internet-of-Things (IoT), are being applied to fire suppression systems to address these types of risks. Venkatesan et al. (2023) proposes an IoT fire suppression system, with a system that takes a more embedded approach to detecting potential fires and providing targeted measures in response to the specific issue. This is quite an interesting example because it shows the range of applications of industry 4.0 technologies.

The second issue described in your post, the destruction of the physical infrastructure and subsequent outages, illustrates a key benefit of cloud computing, a cornerstone technology of industry 4.0. Cloud computing can reduce dependency on physical infrastructure, whilst still noting that cloud computing does include risks related to outages, as described by Sultan (2014). Solutions such as AWS Outposts, which enables an on-demand shift from on-site to cloud computing (Amazon, 2024),

can address the risks related to physical infrastructure.

Both examples underscore the risks and opportunities in adopting Industry 4.0, especially given the significant business impact when things go wrong.

Coming from a manufacturing background, it would be great to hear more about the unique challenges cloud computing and automation present in the media industry.

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