Mustafa Suleyman, *The Coming Wave: Technology, Power, and the Twenty-First Century's Greatest Dilemma,* New York: Crown, 2023, 332 s.

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The Upcoming Giant Wave Brought by Artificial Intelligence

Artificial intelligence technologies are now encompassing nearly all aspects of our lives. Generative AI technologies like ChatGPT, supported by large language models, were adopted by millions of users in a short time after becoming accessible, highlighting their potential applications across a wide variety of fields. Once accessible, AI technologies quickly found their place in domains such as education, healthcare, science, finance, defense, media and journalism, and customer support services, leading to the rapid formation of an AI ecosystem (İlikhan et al., 2024; Özer, 2024a; 2024b; Pavlik, 2023; Perc et al., 2019; Septiandri et al., 2023; Tanberkan et al., 2024). As the use of artificial intelligence technologies becomes increasingly widespread due to the benefits they provide, the challenges encountered during their application have brought to the forefront discussions about the potential risks of these technologies, which may be as significant as their benefits (Acemoğlu et al., 2023; Özer et al., 2024a; 2024b).

Artificial intelligence represents a new technological wave that is fundamentally different from previous technological disruptions. As the AI ecosystem rapidly develops, the gradual recognition and expression of the risks posed during the

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initial phases of this major transformation have begun to heighten anxiety about what humanity might face when the full wave arrives. Countries have now started implementing AI regulations, and efforts to adopt especially multinational measures are increasing. In this context, Mustafa Suleyman's book *The Coming Wave: Technology, Power, and the Twenty-First Century's Greatest Dilemma* (2023), authored by a prominent entrepreneur in the AI field, makes a significant contribution to understanding these challenges and contemplating solutions. Therefore, this study provides a detailed evaluation of Mustafa Suleyman's book.

Mustafa Suleyman likens the wave brought by artificial intelligence to the flood myths in ancient traditions, which destroy and reshape everything in their path (p. 7). While Suleyman lists the benefits that the AI ecosystem could bring to humanity, the subject he emphasizes the most is the potential and deeply frightening risks that artificial intelligence entails (p. 10).

Suleyman first focuses on the recurring narrative of technological transformations. Each transformation initially produces products accessible only to the wealthy, aiming to make life easier. However, as companies intervene to make these products more affordable for the masses, their usage becomes widespread, ultimately triggering societal transformations not only in the original domain but also in other areas. Suleyman defines technological transformations that manifest in life, turn into waves when they become widely adopted, and are carried into the future by triggering new developments as general-purpose technologies (p. 27). The intensity of a technological wave is determined by the scale of the areas it impacts through its interconnectedness. As the scale grows, the existing ecosystem triggers the formation of a new ecosystem, thereby enabling the emergence of the next wave (p. 28). For example, the spread of electricity fundamentally transformed industry, communication, and daily life. Electricity reshaped how factories operated, increased the speed of transportation, and revolutionized every aspect of modern life. The adoption of this technology reshaped the global economy and society, much like the printing press transformed access to information. The widespread adoption of electricity is considered a turning point in human history and remains a cornerstone of modern life. Similarly, large-scale and interconnected dissemination, such as the invention of the printing press, radically transformed access to information and had profound effects on cultural, scientific, and social development. The proliferation of books ignited significant movements such as the Renaissance, the Enlightenment, and the modern scientific revolution (p. 30).

These chain reactions demonstrate how technology evolves within a continuous cycle. Each new technology is the cumulative result of its predecessors, enhancing the

speed and scope of technological dissemination. This cycle serves as the fundamental driver of technological progress and lies at the heart of societal transformations. As Suleyman highlights, Uber would not be possible without smartphones, smartphones would not exist without GPS, GPS would not function without satellites, satellites would not exist without rockets, rockets depend on combustion techniques, and combustion techniques ultimately trace back to fire (p. 31). Each wave of general-purpose technology becomes larger and more comprehensive than the one before it (pp. 33-34).

Once general-purpose technological waves emerge, it becomes increasingly difficult to control them or prevent their misuse for purposes beyond their original intent. The effects of technology are often far broader and deeper than the intentions of its inventors (p. 35). In this context, Suleyman highlights how technological waves in the past encountered different control mechanisms across various cultural and economic settings. Similarly, Suleyman points out that Queen Elizabeth I, in the late 16th century, rejected a new type of knitting machine, fearing it would disturb guilds. He also discusses how guilds in Nuremberg, Danzig, the Netherlands, and England destroyed new types of weaving looms, and how the Luddites attempted to smash and destroy industrial machines (p. 39). Thus, resistance to technological waves often stems not from ideological stances but from sudden and desperate reflexes triggered by an early awareness of the socioeconomic disruptions these technologies might cause. These resistances illustrate how new technologies threaten existing social and economic structures and how these threats provoke fear-driven reactions among people.

General-purpose technological waves have entered a new phase with artificial intelligence and synthetic biology (p. 55). In his book, Suleyman discusses the development processes of artificial intelligence and the impact of deep learning. He particularly highlights the ability of AI to learn from unlabeled real-world data as a turning point in the development of large language models (p. 65). Suleyman emphasizes that with the dramatic increase in the use of raw and real-world data, AI has the potential to replicate and even surpass most functions of the human brain (p. 67). Suleyman emphasizes that artificial intelligence is not merely a technology but a transformative meta-technology, given its potential. In this context, he points to a new wave in meeting energy needs through fusion (p. 100). Consequently, the waves of synthetic biology (life), artificial intelligence (intelligence), quantum computing, and fusion and renewable energy (energy) are converging and colliding, collectively pushing the boundaries of a new civilization (p. 101). Suleyman states that the upcoming wave of artificial intelligence has four fundamental characteristics: it has

an asymmetric impact, undergoes hyper-evolution, is multi-purpose, and possesses a level of autonomy never experienced before (p. 105).

Asymmetric impact disperses power rather than centralizing it and moves it further away from controllability. This impact provides a significant advantage to "the new and small" against "the conventionally large," as the low cost of the technology enabling this effect makes it easily accessible. On the other hand, technology companies are becoming major power centers compared to states. The growing global power of mega-corporations is challenging states and institutions, forcing a rebalancing of power dynamics (pp. 187-188). This new order points to a structure where a small number of actors holding capital and technology become central powers in social and economic relations. As the need for labor decreases, economic and social control over people may increasingly fall into the hands of a minority of capital owners. This scenario could deepen social hierarchies, potentially creating a new form of digital feudalism. The approaching great wave offers a strong signal of how the concentration of technology and capital might transform the economic and political order (p. 191). Similarly, states could evolve into a new dimension with unprecedented surveillance and control capabilities. New tools such as artificial intelligence, big data analytics, surveillance, and biometric systems offer states an unprecedented level of detailed and, when combined, comprehensive control over society.

On the other hand, asymmetric impact amplifies systemic vulnerabilities or momentary errors to a global scale due to interconnectedness. For instance, in the digital world, there is no barrier preventing a national security breach from escalating into a global catastrophe within a few steps. With the technologies of the approaching wave, such threats could become far more complex, powerful, and potentially destructive (p. 107).

In the context of hyper-evolution, this wave is developing at such a rapid pace that it is becoming increasingly difficult for society to keep up with these innovations and implement the necessary regulations. The risk of standards and safety protocols failing to keep pace with technological advancements poses significant challenges both socially and economically.

The greatest risk arises from the multi-use potential of these technologies. For instance, a technology capable of accelerating disease treatment could also be used to develop lethal compounds, highlighting the magnitude of potential risks associated with AI-driven innovations in drug discovery and similar scientific fields. Thus, a technological application initially developed for specific aspects of life can increasingly become general-purpose and, through the connected world, trigger

radical transformations in entirely different fields. Moreover, the unintended uses of such technologies often go unnoticed until they are actively deployed, delaying and complicating the implementation of preventive measures. This uncertainty underscores how flexible and widely applicable new technologies can be, creating a situation that is both harder to control and riskier (p. 111).

Another significant risk is that the new wave is increasingly moving beyond human control and gaining autonomy. Full autonomy transforms technology from a simple tool into something capable of making its own decisions and acting independently of human intervention. This fundamentally alters our traditional understanding of technology and raises new ethical, safety, and control issues. If humans are entirely removed from the process, who will bear the responsibility? How will the decisions made by autonomous systems be controlled? These questions highlight the profound challenges posed by autonomous technologies and the urgent need to address them (p. 114). Moreover, as Suleyman highlights, what happens if AI systems become capable of autonomously navigating the internet, collecting data, and managing their own R&D (research and development) processes? (p. 115). The ability of these systems to develop their own algorithms will accelerate their capacity for independent decision-making and self-learning. This could lead to a scenario where technology evolves autonomously without human intervention. Such autonomy would enable revolutionary advancements in science and engineering but could also result in unforeseen consequences, security threats, and ethical dilemmas. For example, would it have been possible to contain an autonomous software like the WannaCry ransomware of 2017—an attack that paralyzed the UK health system, Deutsche Bahn, Telefónica, FedEx, Hitachi, and even China's Ministry of Public Security—if it had been capable of continuously patching its vulnerabilities? Managing such threats in the new wave may prove significantly more challenging (pp. 162-163).

To help us better understand these issues, Suleyman references Stuart Russell's "gorilla problem" approach (p. 115). Although gorillas are physically stronger than humans, humans are able to control gorillas through their superior intelligence. If an intelligence akin to artificial general intelligence were to emerge, this balance of power could shift. A more intelligent entity might take control, and humans could find themselves relegated to a similar fate as gorillas, losing their dominance. This would not only create a technological challenge but also pose an existential problem. For this reason, discussions around the development and regulation of such technologies will face challenges unlike anything humanity has encountered before.

In summary, the four fundamental characteristics Suleyman uses to define the new wave are not independent; they continuously reinforce each other, increasing the

complexity of the new wave. Suleyman himself is skeptical about the controllability of this ever-more complex wave characterized by these four features (p. 116). In essence, the new technology wave will not only challenge the governance capabilities of individuals and societies but also test the capacity of states to adapt and respond, reshaping power dynamics in the process. The approaching wave of technology will profoundly affect not only power dynamics between states but also the interactions between individuals, communities, and institutions.

Every major technological wave has initially been discussed in terms of its impact on labor. In each wave, some jobs are removed from the labor market while new ones emerge. In past technological waves, the destruction and creation of jobs have, over time, achieved a balance, leading to relatively non-disruptive effects on labor markets. However, the wave of artificial intelligence differs from previous major technological waves, and studies with conflicting findings about its potential impact on labor markets are heightening concerns (Acemoğlu et al., 2023; Özer and Perc, 2024). What if the massive wave caused by artificial intelligence does not resemble previous waves? Is there any guarantee that the new jobs created will not eventually be performed by AI as well? (p. 178). Suleyman thus predicts that the path of complementing humans will be temporary and that the path of automation will ultimately prevail (p. 178).

On the other hand, the sustainability of societies and economies will face significant threats in the face of aging populations and shrinking workforces. Without new technologies, countries may struggle to overcome the challenges brought by these demographic shifts and maintain living standards. This demographic crisis is not only about an increase in the elderly population; it also poses major risks in terms of economic development, social security, and sustainability. As younger generations' participation in the workforce declines, societies could face a shortage of expertise, reduced tax revenues, and a decrease in long-term investments. This could render economic systems unsustainable. To counterbalance this trend, finding ways to compensate for the workforce with artificial intelligence, automation, and other technological solutions is one of the greatest priorities for modern societies.

Finally, the new wave simultaneously democratizes technology by decentralizing it and making it more accessible while also enabling centralization through mega-corporations. In other words, democratization and centralization are advancing concurrently. However, the intentional or unintentional risks posed by both dimensions will make it easier for states to shift into a security mode, increasing control and surveillance. In cases of societal risk, this shift could easily gain social legitimacy. Consequently, one of the greatest risks is the potential increase in pressure

on individuals and the restriction of freedoms under this pretext. Although China is often cited as an example of this, any country could readily adopt such a mode (p. 215). Therefore, the approaching wave sharpens this age-old dilemma. On one hand, there is an increasing need for greater security measures to protect societies from major disasters. However, this raises the question of how much freedom, individual rights, and national sovereignty will be sacrificed in the process. The delicate balance between freedom and security becomes even harder to maintain in the face of the risks and threats posed by advancing technology.

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