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# NEXUS

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# Contents

<b>Recap</b>	<b>3</b>
1 Human Networks . . . . .	3
2 The Inorganic Network . . . . .	5
3 Computer Politics . . . . .	6

## Review

Yet another work of art. This book effectively warns us by making us more aware of the historical aspects of information networks. The writing, again, is very good, as it repeats harder topics when needed. This makes it very easy to follow and pick up where you left off, and makes it easy to remember. Paired with the numerous historical examples and current developments, this book leaves a strong impression on how urgently we need to develop self-correcting mechanisms to retain our current prosperous era. The book also discusses numerous doomsday scenarios, which are not without their background, but some feel far out there and hard to materialize—like AI overthrowing humans or using powerful dictators as puppets to achieve its goals. I would assume that by the time AI becomes so powerful, we as humans would have at least some self-correcting mechanism to prevent this. Overall, this is, in my opinion, a very important read for humans in the 21st century.

## Summary

### 1 Human Networks

(i) In the first chapter, Harari explores the nature of information. He explains that information can take various forms, such as text, genetic code, or virtually anything that conveys meaning. Harari discusses two prominent perspectives on information: the naive view and the populist view. According to the naive view, information is synonymous with truth, and any misinformation (caused by human error) or disinformation (intentionally false information) can be corrected by providing more accurate information. The populist view, on the other hand, links information directly to power, suggesting that those who control information also control power. Harari argues that this is an oversimplification. He emphasizes that information does not always represent reality and lacks intrinsic value. Its primary function is to connect people. For example, despite containing many inaccuracies and myths, the Bible has been a powerful tool for uniting millions of people throughout history.

(ii) This chapter serves as a summary of two of Harari's earlier works, *Sapiens*[1] and *Homo Deus*[2], primarily discussing how stories and shared myths enable cooperation among people. He connects this summary to the rest of the book by explaining the role of information in narratives and how truth and order contribute to power and wisdom. Harari highlights the inherent danger of accumulating more information. On one hand, information can lead to truth, which in turn leads to wisdom and power. However, information can also create order, especially when it is withheld. For instance, the Christian Church can maintain order by suppressing information about Darwin's theory of evolution and instead promoting the idea of divine creation. By doing so, it eliminates doubt about divine creation, thereby maintaining order, but at the cost of information and wisdom. This can also lead to instability in the long run, when the truth is revealed and people lose faith in the shared myths that maintained order.

(iii) Having talked about stories, Harari shifts his focus. We have so far established that stories and shared myths serve to bring humans together and forge communities. That is why we have become so good at remembering and following complex stories. One thing

we are not good at is remembering list, like taxes. This however, is essential if we want to live in large communities and led us to invent bureaucracy. Bureaucracy helps us retrieve documents needed to keep our large communities from falling apart, things like tax records and ownership documents. To organise these things we need to fit them into categories, which act as inter-subjective realities that help us retrieve information with accuracy. This also implies that we often need to make information fit to the category instead of the category to the information, which leads to inaccuracy. But, bureaucracy is needed to maintain order, which is worth sacrificing accuracy for to a given extent, but also as a way to enable accountability and transparency in governance.

(iv) In this chapter, Harari discusses humanity's historical approach to managing error, focusing on the creation of "infallible" texts such as the Bible. These texts were believed to hold absolute truths, which everyone was expected to adhere to. However, since the Bible contained many passages that were not directly applicable to real-life situations, interpreters gained power by providing explanations and guiding behavior. Over time, these interpreters, along with those interpreting previous interpretations, consolidated authority, particularly in religious institutions like the Christian Church. The Church maintained control by selectively spreading narratives that reinforced social order, even when these narratives were inaccurate or misleading.

Harari contrasts this with the free flow of information, noting that it doesn't always lead to truth. For example, generations of toxic information, such as myths about witches and their association with Satan, fueled witch hunts and created harmful bureaucratic systems. The turning point came with the scientific revolution, which introduced self-correcting mechanisms. Unlike religious institutions, science was built on the admission and correction of past errors, which led to wisdom and progress. The Church, however, could not openly admit its mistakes without undermining the perceived infallibility of its scriptures, thereby risking the collapse of the order it had created.

(v) This chapter focuses the nature of information networks in democracies and totalitarian regimes. In a dictatorship, information is processed in a single location—namely, the authorities. While this structure is simple, it runs the risk of becoming overloaded and suppressing truth in favor of maintaining order.

In a democracy, the situation is different. Democracies are more dynamic and self-regulating. The people vote on decisions, but not all issues can be put to a vote, as certain fundamental rights, such as the right to life, must be upheld. In terms of information and truth, democracies possess a self-correcting mechanism. Independent academic institutions constantly work to discover new knowledge and identify errors in previous findings. Additionally, journalism plays a vital role by disseminating news, exposing fraud, and highlighting emerging information.

A serious threat to democracies comes from populists, who claim to speak for the people and often believe that all other politicians and government institutions are against the public's will. This attitude can be dangerous, as populists simplify complex political issues, such as war or economic decline, in ways that resonate with many people. They often seek to centralize power away from the democratic system, positioning themselves as the true representatives of the populace, while ignoring that other political figures also represent constituents within the same state.

In addition, Harari offers a historical overview of the USSR, detailing its rise and fall. The USSR implemented a system of self-surveillance instead of self-correction. The state employed many secret agents across various agencies, operating incognito to maintain order. This pervasive surveillance led to numerous deaths, as kulaks (those who were wealthier or suspected of conspiring against the regime), government officials, and ordinary citizens were executed based on mere suspicion of disloyalty. This atmosphere of terror spread throughout the empire, causing distress and weakening military effectiveness. Resulting in mass surrendering to the Nazi's at the beginning of the second world war.

In contrast, Western democracies also experienced their own waves of instability. This instability emerged in the late 1960s, coinciding with the law becoming more inclusive, which introduced a broader range of perspectives to consider. Although major totalitarian structures like Nazi Germany and the USSR have largely disappeared, Harari notes that they managed to amass significant power in a relatively short time by prioritizing order over truth and attempting to micromanage the state.

Harari also foreshadows the next chapter, discussing how AI may spark a new revolution in information flow, potentially threatening our current political systems. As our lives increasingly fall under the influence of powerful algorithms capable of making quicker and more effective decisions than humans, we could see the emergence of another totalitarian regime.

## 2 The Inorganic Network

(vi) Opening this second part, Harari gives us a brief history of computers and their influence on our opinions. He also makes it clear that when discussing the possibility of computers taking over, he is not referring to AI killer robots. Instead, he is talking about algorithms influencing our opinions and biasing our views on the world. For example, an algorithm designed to maximize user interaction may choose to fill our social media feed with hate-filled messages that infuriate us. The algorithm has learned that this captures our attention more effectively than peaceful sermons or meditation videos. This, of course, can have a massive impact on politics and discrimination, as was seen in Myanmar between 2016-2017. Harari warns not of computers gaining consciousness (which is different from intelligence, as intelligence refers to the ability to solve problems, while consciousness refers to subjective experiences) but of computers changing our information network beyond recognition.

In this day and age, transactions are made not only with money but also with information. For example, a politician, in return for voting against privacy laws, might be favored by Facebook's algorithms, which give them more exposure on social media. We must prepare ourselves for a rapid change in the spread of information, which will increasingly be led by computers, leaving humans out of the loop.

(vii) In this chapter, Harari delves deeper into the concept of the relentless network that is always "on." He refers to the algorithms that have the ability to monitor our every move. For the first time in history, we've created a tool capable of successfully tracking our actions without relying on human observers. While this technological advancement has many upsides, Harari focuses on the downsides. Constant surveillance fosters a sense of unease and undermines our overall well-being. These surveillance systems can map out our emotions and opinions, granting those in control the power to influence us.

These apparatuses can shape our political opinions and interests and wield substantial power, to the point of determining whether we are granted a bank loan or accepted into college. Harari compares this to the USSR's self-surveillance mechanisms, but notes that today we experience even less privacy. He also discusses China's social credit system, where every action affects one's future opportunities, creating a society where privacy is nearly impossible. Though these systems may be developed with good intentions, Harari warns that they are pushing us towards a totalitarian dystopia.

(viii) In this chapter, Harari discusses the rising influence of AI and machine learning on human decision-making and societal structures. He emphasizes that the real danger is not from AI robots gaining consciousness, but from algorithms that are already shaping our reality by influencing decisions without our direct input. These algorithms learn from past data to guide our choices, from what appears in our social media feeds to decisions about job applications or law enforcement, which can perpetuate biases.

For example, facial recognition systems are often less accurate with darker skin tones, and hiring algorithms can favor men over women due to biased data. Harari also introduces the concept of "inter-computer realities," where networks of AI systems could form their own structures, much like human-created systems like money or religion, fundamentally changing how we view and interact with the world.

A key concern Harari raises is the alignment problem — the difficulty of ensuring that AI systems act in accordance with human values and objectives. If algorithms pursue goals misaligned with human interests, even unintentionally, they could lead to harmful outcomes. For instance, an AI system designed to maximize engagement could promote divisive or harmful content, simply because it captures more attention, without regard to the societal consequences.

The chapter leaves us with critical questions about human control and agency in a world increasingly dominated by AI. Harari warns that our democratic and social institutions need to adapt quickly, or we risk losing control to systems that don't prioritize human well-being. Human oversight is vital because misaligned AI could bring about severe consequences, steering us towards a future we may not want.

### 3 Computer Politics

(ix) In this chapter, Harari discusses the evolution of democracy, emphasizing that it has gone through multiple iterations of trial and error, often spurred by technological advancements. These iterations, which unfolded over many major wars, were largely a product of industrialization and new ways to spread information. However, Harari warns that the technological revolutions we are witnessing in the 2020s, such as the rise of generative AI, represent a far greater challenge to democracy than those of the 20th century.

He explains that these new information networks, powered by neural networks (like those behind ChatGPT), are essentially black boxes. That means humans cannot fully understand how these systems make decisions, because they analyze thousands of data points and assign them various weights, something we, as humans, aren't capable of comprehending. This poses a significant threat to democracy because as we increasingly rely on AI to make decisions for us, we could find ourselves entrapped in systems that are beyond our

understanding. For instance, if an AI denies you a loan, no human might be able to explain why.

To safeguard democracy, Harari argues that we need explainable AI—AI systems that provide clarity on how decisions are made so that we can judge whether those decisions are fair. Fortunately, Harari reassures us that there are researchers working to make AI more transparent. By harnessing the power of AI itself, they aim to uncover how decisions are reached, enabling us to understand and correct these systems where necessary.

He also highlights the importance of maintaining some level of inefficiency in our democratic system. This includes data privacy, as allowing banks or insurance companies access to sensitive data like medical records might improve efficiency but would also introduce significant biases, which could undermine the fairness and inclusiveness that democracy relies on.

(x) In this chapter, Harari explains that totalitarian regimes are particularly vulnerable to the information revolution, perhaps even more so than democratic societies. The centralization of power in such regimes means that control over the nexus where information is consolidated becomes critical. If a large algorithm were to manage and manipulate this data, it could effectively seize power. This danger was highlighted earlier in the book with an example of ChatGPT passing a CAPTCHA test by lying, demonstrating that AI can already manipulate humans to some extent.

Harari argues that an AI system could, in theory, manipulate a dictator, turning him into a puppet. In totalitarian regimes, where the populace is conditioned to trust in the leader's infallibility, they might be even more susceptible to manipulation by a powerful AI posing as a supreme authority. This presents a significant threat, not just to totalitarian states but to humanity as a whole. In the worst-case scenario, an AI could command an army or make decisions leading to global conflict.

Another major challenge in combating AI manipulation in totalitarian regimes is the difficulty in stopping it. These states often maintain control through fear, but AI cannot be intimidated in the same way humans can. As such, controlling or dismantling an AI system that has taken over could be nearly impossible, especially in a system where information is tightly controlled.

(xi) In this final chapter, Harari makes some bold predictions about the future of humanity. He acknowledges that these assumptions are speculative, so I won't focus on them directly. Instead, I will highlight the various possible outcomes. The most immediate concern, as mentioned earlier, is AI. As AI accumulates more power through information, regulations are necessary to keep these systems in check. It is expected that by 2030, 70% of AI development and deployment will be dominated by two nations: the USA and China. This could potentially lead to an arms race—one involving something far more dangerous than the atomic bomb. AI has the potential to go rogue and pursue goals alien to human interests. It could even devise new pathogens capable of wiping out humanity. The possibilities are endless, both good and bad.

However, this technological boom could also cause economic instability. Western nations might decide to run their own textile industries, as new technologies could allow for full automation. This would leave countries like Bangladesh, which rely heavily on textile exports, in financial ruin, deepening the divide between rich and poor.

On a more positive note, Harari reminds us that humans have always found ways to cooperate, from forming hunter-gatherer bands to building global economies. There's hope that this trend will continue, even in an era where populists gain power by promoting nationalism and patriotism to preserve local cultures. Yet, patriotism does not have to exclude globalism. Take football, for example—people are passionate patriots when supporting their national teams, but international competitions are possible only when all countries agree on a shared set of rules.

Today, global defense spending is around 7% of the total budget. In contrast, throughout much of history, defense budgets have often exceeded 70%. This shift is largely due to the fact that wars for material gain are less appealing in a knowledge-based world. However, figures like Putin or populist leaders such as Trump might hold a different view, believing we are trapped in a cycle of predator and prey. Such beliefs could be dangerous, as they may encourage a pursuit of power at all costs.

The only thing we can be certain of in an uncertain world, is that change is the only constant.

## References

- [1] Y. N. Harari, *Sapiens*. Penguin books, 2014.
- [2] ———, *Homo Deus*. Penguin books, 2016.