10
What Could Happen in the Next One Hundred Years?

A Review of 'Cybernetic Revolution and Global Aging. Humankind on the Way to Cybernetic Society, or the Next Hundred Years' by Leonid Grinin, Anton Grinin and Andrey Korotayev. Springer, 2024

Andrea Komlosy

University of Vienna, Austria

'Today, many of us are convinced that the world is in a state of a major change, and the awareness that we are living in a period of transition to something new and unknown, is constantly growing'. It is difficult to disagree with this idea of the authors of the present monograph. However, it is much more difficult to find an answer to the question, which is increasingly worrying many of us: why has humanity reached such a dangerous bifurcation point when technological progress begins to frighten us? And it is even more difficult to answer the questions that interest everyone: What kind of future is awaiting us and will it be better or worse than the present? Which forces are shaping our future? What changes are likely to take place in the near future and by the end of this century, and what dangers threaten us? The authors of this monograph – Leonid Grinin, Anton Grinin and Andrey Korotayev – have made a profound, conscientious and scrupulous attempt to answer these and many other questions. They characterize the past and the present state of the world in many aspects and details, but the monograph is mainly devoted to the future, presenting the analysis and descriptions of how and why our world will change in the next hundred years.

Before starting to read this substantial and serious book, a reader may reasonably ask: Why is this book worth devoting time and effort? What is new in it? What distinguishes it? What does it offer that cannot be found in other books? I am pleased to give readers a summary of my reading experiences. First of all, such books are rare, because it is challenging to comprehensively

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cover vast periods of time in a single approach, combining past, present and future organically. The description covers almost the entire period of the historical process starting from the emergence of Homo sapiens up to the beginning of the 22nd century.

The authors base their global research on two leading trends of our time and the future – technological and demographic development. These trends are reflected in the title: 'Cybernetic Revolution and Global Aging'. Moreover, it is very important and at the same time unusual that these trends are interrelated, because the authors convincingly demonstrate that global aging is likely to be one of the most important factors affecting technological growth in the near future, as well as why aging will become a driver of the technological process in the coming decades, and then will begin to slow it down.

However, although these two trends are certainly among the most important ones, both today and in the future, there is a surprisingly small number of works that present a consistent forecast of technological development in a systematic and coherent way. The situation is even worse for global aging research. There is a serious lack of systematic research and analysis on this topic. This monograph is one of the few that present the issue of global aging, the impact of social and societal aging on different aspects and spheres of life, society, the World System and our future, in a systematic way and with different scenarios. Thus, the volume fills both gaps, offering a unique combination of intersecting global trends.

The authors provide a broad panorama of the current state and future development of many innovative fields, including breakthroughs in medicine, additive (3D printing), nano-, and biotechnologies, robotics (including drones and driverless vehicles), AI and cognitive technologies, which they group under the term MANBRIC technologies (see below).

Moreover, the monograph touches on other urgent important issues for our present and future, such as: Which occupations may change radically or even disappear in the future, and why; what advantages and dangers the development of technology will bring in the future; why the modern state will be radically transformed in the next five decades and in what forms; how global aging may threaten democracy; whether the threat of men and women living under the complete control of AI regulatory systems will be realized; is a post-human revolution possible, is the threat of becoming cyborgs real, *etc.*?

The monograph is mainly devoted to forecasts for the next few decades, up to the beginning of the 22nd century. Of course, there can be several forecasts, but the future will be realized in the singular. Only time will tell which predictions will come true and to what extent. One thing is clear – our tomorrow will be different in many ways from today's lives, but how and in what ways it will be

different is, of course, unknown. But is it a complete mystery? A discerning eye may offer a good opportunity to identify the trends that are not yet obvious or clear today, but which will reveal themselves and become decisive tomorrow. The authors of this monograph have attempted to present a fairly comprehensive picture of the future. You may or may not agree with it, some may like such a future, and others may be outraged to imagine it. But it is extremely important that this monograph is a rare case of describing the future in such a comprehensive way, in a detailed and systematic manner, touching on aspects that most of us do not think about today. And it is extremely important that the book allows you to think deeply about where mankind is heading. Is it possible to change the course to the future? While the outcome is still unknown today, the authors strive for maximum objectivity, both in showing what concepts, tendencies and trends they base their predictions on, using in-depth historical research to do so, and in objectively assessing these changes.

So, Leonid Grinin, Anton Grinin and Andrey Korotayev share their vision of a cautious optimism regarding what the world will look like in hundred years. As is mentioned above, their view is based on two related phenomena: 1) the Cybernetic Revolution that will have reached its final phase and penetrate all aspects of everyday and social life in the course of the 21st century; and 2) the advancement of the global aging process.

The Cybernetic Revolution is the third crucial technological revolution in the history of humankind. It follows the Agrarian Revolution which lasted from the 10th to the 3rd millennia BC and the Industrial Revolution of the 16th to 19th centuries.

The Cybernetic Revolution started in the mid-20th century and is still ongoing. The authors expect the final phase of the Cybernetic Revolution to start very soon, in the 2030s, and to end in the 2060s–2070s. During this period, there will appear a large number of technologies that will allow various systems to function without direct human involvement. The authors call such systems self-regulating, since they will become autonomous and will be able to function almost without human control. The most advanced of them can be called self-managing systems. Self-regulating/self-managing systems will become a major part of the technological process and of our entire lifestyle.

The completion of the Cybernetic Revolution will put social and economic life on new grounds. Relying on omnipresent data collection from web service users, smart solutions will replace industrial standards of production and democratic standards of politics. Growing amount of data, permanent feedback and algorithmic procedures to carve out the best possible solutions will pave the way for a new type of techno-social regulation. Random sampling, trial and error will give way to a purely rational way of planning. Today, the transition

toward the Scientific-Cybernetic production principle is already manifested in a shift in leading sectors, with medicine, additive, nano, biotech, robotic, information-communication and cognitive technologies as core drivers of change, summarized in the acronym MANBRIC by the authors. They point out the crucial role of medical and health care in implementing self-regulating systems as leading, converging principles of the cybernetic production principle. These trends have been analyzed by the trio in previous works (Grinin and Grinin 2016; Grinin, Grinin, and Korotayev 2017), both in historical perspective, tracing the patterns of development from the Agrarian and the Industrial to the Cybernetic Revolution, and with regard to future outcomes. They are further elaborated on the last topical developments in Parts 1 and 3. In this book, the authors underline their prognosis by combining the cybernetic transition with transitions in the field of global demography, in particular, global aging.

As has been mentioned above, global aging, an extremely important trend, is equally portrayed in front of a *longue durée* historical analysis of demographic change, which reflects impacts of technological and scientific progress. 'By 2050, the proportion of the population aged 65 and over will be more than double that of under-five children', they write (Chs. 1, 6 and 7). According to the UN Population Division, more than a quarter of the world's population will be over 65, exceeding the number under 20. The relevance of such a 'demographic crossing' has been widely neglected in prognostic scholarly discourse so far. It will further attribute importance to the Med-Biotech-Cognitive industries complex in order to ensure a decent and healthy life for the growing share of elderly persons. The elderly will promote unprecedented demand for the health complex and stimulate its leading role not only for economic growth, but for the cybernetic way of life in general with its general vector, defined as a 'special medical-biotechnological environment' with 'rapidly expanding opportunities for correction or even modification of human biological nature' (Chs. 8, 11, and 15).

The new demographic pattern will trigger a shift from social to generational conflicts, however, affecting the regional as well as the global political order. The authors are convinced of the great possibilities the cybernetic mode of life might offer in life expectancy, quality of life and well-being. In some parts of the text they can hardly hide their enthusiasm with, as the reviewer would call it according to Morozov (2013), 'technological solutionism'. They believe that technological progress would improve human life, as it did in the past. While depicting the chances, they also warn about the dangers, the uncontrolled technological development might lead to, in all fields of social life, including the utopian trend to leave behind the age of Homo sapiens and enter a post-human revolution and age. Although much of the post- or transhuman ideas are still

dreams, the authors clearly point out the possibilities to realize them along with the cybernetic transformation, with global aging as an important push-factor to intervene in the biological nature of mankind.

In their Introduction they maintain:

> And although we have no choice but to go forward, the maximum of caution, wisdom, prudence and even some humility before the greatness of the Universe and the world, and deep respect for the heritage left to us by billions of years of biological evolution, are absolutely necessary in order to successfully travel along this path (Grinin, Grinin, and Korotayev 2024: 48).

The ongoing tension between socio-technological progress and its uncontrollable turn into technocratic, authoritarian societies, where dataism, complete surveillance and cyborgization become dominant, overcoming human dignity, human rights and democratic order, represent one of the leitmotifs of the book.

Grinin, Grinin and Korotayev do not only call for prudence, but they clearly speak out, what the cybernetic accomplishments would look like in case of successful implementation: We would permanently deliver our data and live under the control of algorithms, artificial intelligence and all sorts of programs that monitor and supervise human performance, including health, body and brain control. Optimized surveillance would affect governance, which is likely to follow the direction and guidance of complexity sciences, instead of gauging interests in democratic decision-making, for the sake of the best compromise. It would affect political freedom, which is likely to be out-ruled by surveillance capitalism. Last but not least, we – the human beings – might face a major transformation of our existence and undergo a fusion with machines that govern our daily routine. Some techno-freaks cannot await transforming men and women into sexless cyborgs, experimenting with virtual realities or even dreaming of the eternal transplantation of human brain into the collective cyber-space (Harari 2017; Kurzweil 2006). The authors reject such kind of transhumanist phantasies, which they classify as myths. However, the question has to be raised, whether or not their own visions of prolonged, protected and monitored life also risk transcending the entitlements of human rights and individual freedom, represented in the political anthropology of the Enlightenment, and replace it with a technocratic paradigm.

This is why I take note of the authors' cautious optimism with certain reservations. Neither am I convinced of the inevitability of the Cybernetic Revolution to progress in the predicted way nor am I willing to share the entire admiration of smart solutionism and its promise to make life better, more comfortable and happier. I miss more attention to the limits of allegedly self-improving

systems and to the contradictions, unintended consequences as well as to individual rejection and public resistance these innovations will generate. These hesitations do not prevent me from highly appreciating the scenarios and forecasts the three authors are delivering in an unprecedented way. The book is structured into 15 chapters, focusing on four big themes: technological transformations, demographic transformations, the prospects of MANBRIC technologies in the forthcoming epoch of self-regulating systems, to culminate in characterizing the Cybernetic Revolution in the light of overall technological progress and aging. A conclusion is taking up the questions of the introduction.

The authors are well aware of the dangers and fallacies of the surveillance regime, resulting from the growth imperative of data extraction on the one hand and the tendency to move from paternalistic betterment to authoritarian control practices. Their main argument is the following: We still live in a period of transition; the Cybernetic Revolution is approaching its final phase, revealing the main features of the future production regime, but it is not yet accomplished. This is why political, legal and ethical regulations must be discussed and implemented now, i.e., before the new principle will have acquired dominance. This may include R&D moratoria or restrictions on AI research and provisions, how much competence shall be delegated from political steering to the technological self-regulating imperative. The authors do not whatsoever doubt, that the dynamic to finalize the Cybernetic Revolution is under way and will affect all societal realms until it is fully implemented. The more it is crucial for the years to come to anticipate the social, economic, political and ethical implications and introduce as much regulation as necessary and as much social and democratic control as possible. The authors see that we (human beings) face a difficult choice – to gain something, but in return to lose something. Therefore, the book aims at contributing to find the optimal solution to this dilemma.

Frankly speaking, one has to be aware of the restricted maneuvering space for regulations. Regulations often rather serve as motors of acceleration. According to the authors it is not too late, and their clear descriptions of what technological change and self-regulating systems will presumably look like is an appeal for social and political actors to act now, instead of being overmanned by the pace of progress and its unwanted results.

To make it clear in advance: There is hardly a more precise and comprehensive forecast of how the transformation from industrial to cybernetic capitalism would happen. The authors restrain from using the term ‘capitalism’, however. Although they avoid any categorization of the social order or the property relations for the forthcoming cybernetic age, they seem to perpetuate the operation of the capitalist world-system. The strong influence of machine intelligence, which is going to determine social life in an unprecedented way,

will further reduce the autonomy of the individual as well as the political domain. If politics and administration have to adapt to the practical constraints, derived from data analysis, self-regulation and self-management systems, (neo)liberal conceptions of the lean state will become obsolete. This is why the shift to authoritarian forms, or at least the subordination to a technocratic paradigm, is highly probable. Against the reviewer's rather pessimistic fear, the authors introduce a different trajectory for the future of the World System in the 22nd century. Without referring to the political label of such a new system, they argue, that the new demographic and technological system will promote the formation of a new societal type, which can be denoted as the cybernetic society. It will be extremely high-tech society with a stable population size, a very large proportion of the older population and total technological support for societal health and the quality of biological life, achieved by creating of a continuous medical-biotechnological environment (Grinin, Grinin, and Korotayev 2024: Chs. 7 and 15).

In Chapter 6 they plea for a significant change in financial distribution in the direction of increasing the share of benefits and funds allocated to the elderly and disabled people. And in Chapters 13 and 15 they also talk about the fact that a new consumption system will emerge and consumerism will decrease.

Theoretically, the argument of a flattening curve of innovation, economic growth and demographic reproduction is based on the authors' model of the sequence of production revolutions as well as mathematical operationalizations, elaborated in Chapter 12. More easily comprehensible for those, who do not rely on mathematics, is the age-related change in mentality, the authors deduce from the growing share of old people. Accordingly, an aging population would contribute to lowering the pressure on permanent innovation and consumption by a more conservative, relaxed, less speedy and greedy elder generation, who – at the same time – exercise demand for those existing and novel health and longevity products that represent the chance for growth and investment return. Overall, an optimistic prognosis for a new societal model that could replace today's global capitalism or reduce the imperative of accumulation.

At present, the dynamics and efforts to introduce a new production principle cannot ignore the fact that the international order is facing major restructuring. The hegemonic role of the West, led by the USA, does not hold out against the changing geography of global commodity chains, that have been transforming developing countries into new sites of manufacture, moving away from low-end production to more profitable operations, including R&D in new lead industries. We face successful emerging nations, forging new initiatives and alliances, allowing the Global South to turn into a major force of transformation. In an earlier book, Grinin and Korotayev have been identifying a paradigmatic reversal from the ‘Great Divergence’, a code for the growing North–

South divide since European expansion, toward closing the gap, denominated 'Great Convergence', since the second half of the 20th century (Grinin and Korotayev 2015). The fact that the political architecture of international relations does not reflect global economic restructuring including its demographic impacts, has been giving way to serious conflicts; currently (January 2024) they are escalating militarily in Ukraine and in the Near East, with other eventual theaters of war lurking behind the curtain.

Renewal of leading sectors according to the Scientific-Cybernetic Production principle is intrinsically tied to the changing role of the Global South, which gains momentum in the course of Western warfare, or weapon and logistical supply to war-faring parties. The consolidation of South–South relations supports the endeavors to set up international relations beyond the US-Dollar as the global currency and financial instrument of Western dominance. While at some points the authors' visions seem to resemble Klaus Schwab's and the World Economic Forum's visions of a 'Great Reset' (Schwab and Malleret 2020), the strong commitment to a politically and socially inclusive international order, representing a new societal type, opens new dimensions of a multipolar order beyond Western hegemony and their institutions.

Focusing the prospects for a new role of the Global South in international relations leads back to global demographic issues. On the one hand, the growing share of emerging and developing countries designates these populations to be the consumers of the MANBRIC industries' products. The high-income societies of former industrial countries will not suffice allowing those branches a global breakthrough. On the other hand, Grinin, Grinin and Korotayev show that economic upgrading will change demographic patterns and turn societies with an overwhelming percentage of young people into aging societies – still young compared to the Global North, but approaching a transition, that will require more and more care, repair, in order to qualify people to stay longer a part of the active workforce, and allow retired people to participate in social life until a much older age.

The prognostic horizon of this book spans hundred years. The type of Big History, that the author-trio represents, does not rely on empirical historical methods only, but on identified patterns of technological, demographic and social development and on their own theories of production revolutions and production principles that cover the entire historical process. This allows them to carry out extrapolations of time-series analyses into the future. They are outstanding experts in this field, including the price, one has to pay when using statistical macro-perspectives, that is losing sight of individual actors or single historical events.

The reviewer was able to make use of the three authors' expertise in her own socio-economic analysis of the Corona lockdown period 2020–2022, a relatively short, but more influential historical moment (Komlosy 2022). The lockdowns, contact and movement restrictions came as a shock wave, disrupting social and economic relations by far-reaching closures of the economy, trade, education, travel, cultural and sport events, *etc*. Against all statistical evidence, governments, international health organizations and media constructed a health crisis, turning a fairly curable mass disease with a low mortality risk into a high mortality pandemic. The Corona moment served as a catalyst. It accelerated the implementation of the MANBRIC sectors: digitalization and remote services opened a way for people to take part in social interaction without personal contacts; health products like tests and vaccines were decreed under compulsion as well as subsidized by governments; control and tracking apps gained grounds as did the use of body monitoring to improve lifestyle and health status (Ch. 14).

The Corona moment as a single historical moment served as a prism, in which elements of the ongoing cybernetic transformation showed up in a condensed form. To interpret them beyond the daily grievances, Grinin, Grinin and Korotayev provide the long-range, wide-angle explanatory framework of cyclical sectoral renewal and shift in production principles. It is possible that the predicted transformations toward a cybernetic society would have proceeded, without the accelerating impact of the Corona regimes. History takes its course, like rivers shape their beds. Maybe. Such a perspective does not take into account that Big History is mirrored in Small History. Only if we consider long-term and short-term, event and structure, we can approach the driving forces of history. Therefore, we can assume, as the authors acknowledge in Chapter 4 as well as in previous works (2021), that the disruptive effect of the Corona management accelerated the speeding-up of the Cybernetic Revolution.

Once events are taken seriously, we have to consider unintended consequences, however. In the case of Corona, not only did the measurements pave the way for the acceptance of new health and control regimes, which are at the heart of MANBRIC convergence and the introduction of self-regulating systems of surveillance, health monitoring and control. They also provoked a strong popular sentiment against data expropriation and digital surveillance, giving rise to a mass movement for human self-determination and sovereign conduct of life. This sentiment might change the course, or pace of the cybernetic transformation; it might as well contribute to being more attentive vis-à-vis the authors' appeal to be vigilant against the dangers of authoritarian takeovers of the cybernetic society.

References

Grinin L. E., and Grinin A. L. 2016. *The Cybernetic Revolution and the Forth-Coming Epoch of Self-Regulating Systems*. Moscow: 'Uchitel' Publishing House.

Grinin L. E., Grinin A. L., and Korotayev A. V. 2017. Forthcoming Kondratieff Wave, Cybernetic Revolution, and Global Ageing. *Technological Forecasting & Social Change* 115: 52–68.

Grinin L. E., and Korotayev A. V. 2015. *Great Divergence and Great Convergence: A Global Perspective*. Springer.

Grinin L. E., Grinin A. L., and Korotayev A. V. 2022. COVID-19 Pandemic as a Trigger for the AcceleraTion of the Cybernetic Revolution, Transition from E-Government to E-State, and Change in Social Relations. *Technological Forecasting & Social Change* 175: 121348. https://doi.org/10.1016/j. techfore.2021.121348

Grinin L. E., Grinin A. L., and Korotayev A. V. (Eds.) 2024. Introduction. Between Human and Post-Human Revolutions, Or What Future Awaits Us? *Cybernetic Revolution and Global Aging. Humankind on the Way to Cybernetic Society, or the Next Hundred Years*, pp. 1–62. Springer.

Harari Y. 2017. *Homo Deus: A Brief History of Tomorrow*. Harper.

Komlosy A. 2022. *Zeitenwende: Corona, Big Data und die kybernetische Zukunft*. Promedia.

Kurzweil R. 2006. *The Singularity is Near: When Humans Transcend Biology*. Penguin Books.

Morozov E. 2013. *To Save Everything, Click Here: The Folly of Technological Solutionism*. Public Affairs.

Schwab K., and Malleret T. 2020. *COVID-19: The Great Reset*. Forum Publishing.