



Pavel Sirůček

Bubble 4.0

**A Marxist View through the Prism
of the Old Left**

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Pavel Sirůček is a political economist and a member of the Centre for Strategic and Theoretical Studies of the Communist Party of Bohemia and Moravia (KSČM).

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Introduction

This essay deploys the method of Marxian political economy, along with the legacy of Radovan Richta, M. Toms, as well as Kondratiev-wave theory in terms of innovation waves as developed by František Valenta. It offers a critical-analytical approach to the phenomenon of the so-called Fourth Industrial Revolution and discusses the contents and wider framework of the processes, more precisely the 4.0 bubble another form of transformation of capitalism. So-called Fourth Industrial Revolution, based on the Industry 4.0, should bring a new economy as well as ground-breaking wide-reaching changes in the society as a whole. However, the inflation of over-use of the 4.0 buzzwords threatens to make them hollow. The 4.0 significance lies mainly in its psychological and propaganda impact: after the Great Recession, the West gains both an optimistic vision and fetching mottos. The 4.0 Hype strongly resembles the bubble of the so-called new economy of the 1990s. There is no paradigm shift. At present, the impact on the next phase of mass digitalization, cybernation

and robotization, especially in industrial manufacturing, are inflated. From the Marxist point of view, the unresolved issue remains not only whether it is the Fourth Industrial Revolution, but mainly if this is a revolutionary and qualitative turning point that would lead to the colossal epoch-making civilisation change. Using the criterion of epochal innovations of the highest order, the breakthrough qualities of 4.0 technologies remain questionable. Another open question is the complicated rise of the V of the long K-wave, or the other waves respectively. Even a possible modification of the tools of industrial long K-waves in the post-industrial reality of the 21st century. Finally, the text addresses the tasks of the political left in the light of new historical challenges. And this is discussed from the perspective of the Old Left, emphasizing the economic contents of Marxism and the key importance of the category of ownership. Rehabilitation of socially useful work and the struggle for peacekeeping is the key tasks.

Exploring globalisation and 4.0 processes – the Czech contribution

The so-called Fourth Industrial Revolution (4IR) is said to be dramatically shaking the world. 4.0 technologies are thought to have unprecedented impact not only on the economy but also to be revolutionising society as a whole. There are many myths associated with the 4.0 projects and visions. They can be deconstructed using the methodology of Marxist political economy, including the theory of long innovation waves, an area, among others, in which Czech economists contributed significantly to the development of Marxian theory. It has often been said of Czech (or more broadly Czechoslovak) economic thought that due to several factors, it never consolidated around a comprehensive theoretical school, movement, or stream that would have a major impact on international economic theory. In today's Czech Republic, acknowledging original domestic intellectual resources re-

mains problematic, the dominant trend being the adoption of foreign concepts and theory. The latter tend to be adopted when seeking solutions to economic and political problems. Characteristic of these approaches to economics is the frequent linking of economic concepts to opinions and activities, particularly political, the connection of economic science with law typical of earlier economic studies, or the marked discontinuity of development in the 20th century.¹ Czech economic thinking has traditionally been characterised by a solid familiarity with the contemporary development of economics internationally, and also with the history of economic history and thought.

Nevertheless, earlier Czech socio-economic thinking has also brought to the table concepts of its own that tran-

1 See Doležalová, 2018 and Bráf et al, which emphasizes economic thought until 1945/1948 (A. Bráf et al.) and the contribution of economists in exile. The era of Marxist political economy is interpreted unilaterally as the 'Dark Age'.

scend national borders² and which can be deployed to great advantage when examining current contradictions and problems from the point of view of the traditional labour-based political Left. In this respect – and not only in the context of the development of Marxian political economy³ – the legacy of Radovan Richta, Miroslav Toms and František Valenta⁴ needs to be recovered.

The study *Civilization at the Crossroads* (Richta et al., 1966), in many ways ahead of its time (sometimes referred to as ‘Capital of the 20th Century’), is the most translated Czech book of all time. Philosopher, sociologist, forecaster, head of an Interdisciplinary Research Team, Radovan Richta (1924–1983) was one of the twentieth century’s leading Czech scholars. His work focused on the scientific and technological revolution (STR) and its social and human context.⁵ And this against the backdrop of the clash between the worlds of socialism and capitalism. Richta’s work is filled with humanist ideals. Even *Civilization at the Crossroads* suggests an approach to general transformation and social progress in terms of individual self-realisation as the fulfilment of one’s purpose in life. The universal development of individual human beings is considered the foundation as well as the ultimate goal of the development of the work force.

Richta’s novel approach to a Marxist concept of the STR was complex and unique at the time. It compares the STR with the industrial revolution and illustrates the differences. The qualitative analysis is completed with quantitative indicators. *Civilization at the Crossroads* introduces ground-breaking ideas. ‘Crossroads’ here refers to the possibility of harnessing and developing the productive forces in a harmonious way, including the development of the most important component – human beings, their skills, and intellectual life. As early as the 1960s, Richta warned that economic difficulties, imbalances, and the blocking of other industrialisation processes signalled the presence of the ‘nodal line’ of modern civilisation, beyond which the further development of productive forces is not manageable under the existing relations of production, but only through full transition to the STR.⁶ The warning about ignoring development trends remains pertinent. Also, determining the right road at a civilisational “crossroad” requires systemic changes. But for these it is necessary to change people and the relations among them. Human beings – according to Richta, and also Marx – will change if they use their free time for their development.⁷

The work of Richta and his team may be seen as the forerunner of, for example, the Club of Rome and its warnings about the future. Richta remains an important pioneer of

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- 2 For example, the utopian socialist Bernard Bolzano (1781–1848). His work in the field of mathematics and logic has stimulated scholars throughout the world, and domestic authors continue to draw on his critical social and political ideas. From the inter-war period, the influence of the original ‘teleological’ economic theory of Karel Engliš (1880–1961) and the economic-political practice of Alois Rašín (1867–1923) continues to be felt. After the Second World War, the studies of the Marxist Josef Goldmann (1912–1984), the reformist and ‘market socialist’ Ota Šik (1919–2004), and philosopher Karel Kosík (1926–2003) achieved international fame.
 - 3 It should be noted that the first original textbook of Marxist political economy was written outside the Soviet Union. A systematic interpretation – presented in a more popular form, but not at the expense of scholarship – was authored by Antonín Kamenický (1899–1942) under the pseudonym Jan Ulrych (Ulrych, 1937). It illustrated theoretical axioms with examples from Czechoslovakia and other countries. The work still has something to offer even today, in terms of content, methodology and pedagogy.
 - 4 And many others, such as those who studied relations of production and ownership – see Hába, Křížek (1975).
 - 5 He considers the ‘technical conditions’ of man’s creative self-assertion and the controversy of technology and ‘humanity’, using the natural-historical conception of development originated by Marx and Engels. Richta examines civilisational change from an interdisciplinary perspective including philosophical and methodological questions, along with problems of prognosis, all in relation to a communist humanist outlook. The contributions of Richta’s team to long-term planning are used by the Prognostic Institute of the Czechoslovak Academy of Sciences, whose members played a contradictory role in the post-1989 transformation processes. For details see Sirůček, Džbáňková (2018) and Sirůček (2019c).
 - 6 Richta’s team was responding to the crisis of industrialism (particularly in relation to heavy industry), which evidenced problems still after the completion of socialist industrialisation. The concept of STR was a socialist response to the challenges framed in the West in, for example, the theory of post-industrial societies or the information revolution; see Dinus et al. (2019).
 - 7 See Jurásek et al. (2016).

the theory of global problems and, in accordance with his Marxist outlook, analyses the position of man within STR processes. One of the key inspirations is the emphasis on the spheres of science and research, which are now commonly regarded as a key source of economic growth. Richta's work was the starting point for many critical issues in the debate about 'Society 4.0' or '5.0'. Developing at least some of Richta's legacy could help in the recognition that our civilisation is indeed at a crucial crossroad. The dictatorship of political (hyper-) correctness, however, strictly rejects any notion of a civilisational crossroad. It enforces the uncritical acceptance of the '*end of history*', the only supposedly correct progressive endorsed by so-called liberal democracy.

In Czechoslovakia, Marxian political economy was developed creatively by Miroslav Toms (1944–1988), with an emphasis on macroeconomic modelling, including the application of production functions in the Czechoslovak economy. He explored theoretical concepts that would allow some bridging between Western economics and Marxist political economy. This was based on Michał Kalecki's growth model; Toms developed an original concept of extensive and intensive economic growth. Together with his colleagues Mojmir Hájek, Antonín Kotulán, Miloš Mach, and others he developed the theory of optimal planning and looked at the planning function of efficiency criteria in a new way, as well as the theory of reproduction or the issue of improving the economic mechanism.

Although unfinished, the broader analysis of socio-economic effectiveness, including its measurement, efficiency criteria – namely indicators of the aggregate and partial economy and efficiency – continues to be thought-provoking.⁸ Toms reflections on the synthesis of various economic approaches and systems are also worth mentioning. This analytical approach is evident from the way it views capital and its measurement, theories of value, as well as its attempt to formalise and dynamise Marx's theory of cycles and growth deriving from increases in labour productivity as a result of scientific and technological progress. This

progress was not understood by Toms as exogenous (and merely adapted to the needs of the socialist economy), and in this way his approach was more advanced than contemporary models of endogenous growth.

František Valenta (1928–2002) was an economist and political and public official who is still regarded as the leading figure who developed the micro-, meso- and macro-economic connection to innovation. He contributed to the development of a ground-breaking tool for explaining business cycles, especially long Kondratiev-waves. By introducing classifications for innovation, he made his mark in the history of global innovation theory, focusing on the issues of scientific and technological development, efficiency, and innovation processes.⁹ On a historical materialist basis, guided by the labour theory of value, he created a coherent theory of innovation. It expanded Joseph Schumpeter's notions of innovative dynamics and attempted to apply them to the conditions of economic practice. The theory conceptualised innovation orders and innovation radius, enriching theory in many other respects. He has been described as a classic author of the theory and methodology of innovation and is often ranked as a giant alongside Schumpeter and Drucker.

One of the important aspects of the classification of innovation is the perspective of innovation groups. In the original concept (Valenta, 1969), he categorises innovation on an eight-level scale (0-7). The grouping can be refined. Valenta himself expands the classification, establishing a scheme of complex innovations, etc. Consequently he modifies the classification, adding empirical research based on the original concept of orders (Valenta, 2001). The classification of innovation orders is as follows: 'order minus n' (degeneration), 'order 0' (regeneration), 'rationalisation – innovation – rationalisation' ('orders 1-4'), 'qualitative innovation' ('orders 5-8') and 'technological revolution – microtechnology' ('order 9').

Valenta's theory is based on the assumption that there is a natural cyclic order for both companies and the econo-

8 This includes systemic considerations of economic efficiency as a relationship between social needs, production, and resources, all tied to the perspective that under socialism economic efficiency should not only include 'the economy' but also 'effectiveness' in the sense of the social usefulness of production. See Toms (1981), (1988) and Vaner et al. (1977).

9 He treated complex issues of innovation processes and industrial production efficiency. He also developed the category of efficiency and thus was one of the first to combine two aspects of efficiency: effectiveness and efficiency.

my. This is in the spirit of Schumpeter's forward-looking approach, in which innovations are the starting points for the exploration of economic dynamics in periodically occurring cycles. It combines cyclical fluctuations with uneven distribution of innovations in time, which are implemented cumulatively. They occur in waves, or 'clusters'; a cluster leads to expansion, while the exhaustion of the innovation-wave potential, in certain orders, is closely linked to recession. Valenta demonstrated that the innovations

of individual orders usually alternate in regular time intervals. He also linked them to business cycles of different lengths and operates with Kitchin, Juglar (J-waves), Wardwell (W-waves), and Kondratiev (K-waves) cycles. He tried to prove that one K-wave (about 50 years) contains two W-waves, one W-wave (22-25 years), three J-waves (about 9-11 years), and one J-wave three cycles of Kitchin waves (about 3 years). Long K-waves are triggered by radical innovations as new branches and industries (sectors) emerge.

Old and new theories of transformation of capitalism

4.0 technologies are connected with the current stages of digitisation and robotisation as another epoch-making revolution. The 4IR is driven by Industry 4.0 (i4.0). A great deal has already been written about 4IR; still, for a political economist, there are very few stimulating texts. Both international and Czech research show¹⁰ that the vast majority of material on 4IR, respectively i4.0 technologies, remain in the realms of popularizing texts, uncritical propaganda, or naive utopia. In the case of more serious work, their focal point is industry and technology; they focus on technological and ICT (information and communication technology) aspects while neglecting other correlations – managerial, organisational, economic, or social challenges. Similarly, in *Industrie 4.0* initiatives, etc, the emphasis is on the technical side, while other aspects such as social or managerial issues, are usually neglected. There is no generally accepted definition of 4.0 processes nor deeper theoretical understanding of their nature.

Why has the 4IR phenomenon emerged at the beginning of the second decade of the 21st century? Is this really a turning point (or a shift from quantity to quality), despite the fact that it is clear that the development of digital communication, automation, or robotics has been ongoing and continuous? Would there not have been favourable conditions for this development in the first decade of the 21st century? Has the "historical terrain" not been cleared? There

was not even a project (nor a striking, concise, easy-to-remember slogan) to summarise the possibilities of new technologies, directions of their further development, or, more broadly, embody an optimistic vision of the Western way. That is how the German *Industrie 4.0* initiative and the whole 4IR concept occurred. It is essential to show that Western Europe is neither a 'tired empire' nor a 'suicide, broadcast live'. After the frustration of the Great Recession, it was important to counteract the lack of confidence in the global capitalist system. Philosophy 4.0 was therefore intended to penetrate everyone's mind.

The whole concept of 4IR has been artfully peppered with ornate declamations on the ground-breaking 4.0 technologies, continuously repeating the hackneyed phrases about information, knowledge, the digital, networking, etc. In a broader sense, they belong to the dozens of intertwined, and mutually complementary socio-economic theories on capitalist transformation. From their perspective, twentieth-century capitalism, especially after the Second World War, was supposed to have fundamentally changed and transformed itself. The concepts of the transformation of capitalism break down into the old theories (from the turn of the 1980s and 1990s),¹¹ on the one hand, and the new ones, on the other hand, that reflect the disintegration of the world socialist system and the contradictions of the 21st century.

10 See Sirůček (2018).

11 For example, with theories of managerial order, the democratisation of capital, and the revolution in pensions, mixed economies, or convergence. Other forms are theories of industrial and post-industrial, or information, society. The reformist concepts of the Keynesians, the technocratic concepts of institutionalists, the approaches of neo-institutionalists, or the theory of the self-destruction of capitalism can be broadly included.

Modern and postmodern capitalism, or post-capitalism (Paul Mason, Peter Drucker), was to be '*resurrected*' and become an industrial society (Raymond Aron and John Kenneth Galbraith), or a post-industrial one respectively (Daniel Bell), a technotronic, cyber-electronic (Zbigniew Brzeziński), information, superindustrial (Alvin and Heidi Toffler), network (Manuel Castells, Jeremy Rifkin), digital (Don Tapscott), or a learned society of knowledge (Drucker). Alternatively, it was to become a system transformed by the managerial revolution (James Burnham), convergence processes (Jan Tinbergen and John Kenneth Galbraith), the '*third way*' of the market economy (Anthony Giddens), or the processes of digitisation (Paul Mason).

The newer theories include the concepts of '*natural capitalism*' or the prospect of '*capitalism without capital*', resulting from entrance into the '*intangible world*' (Jonathan Haskel and Stian Westlake). Anatole Kaletsky's '*capitalism 4.0*' model deserves mention: it predated the 4IR and emphasised the ability of capitalism to adapt. Many dream of capitalism's miraculous transformations under the influence of information and digital technologies to positively change people in the direction of greater sharing and cooperation, to reduce the desire for power and ownership to the benefit of empathy and responsibility. Ownership is supposed

to be replaced by access to databases, services, and sharing (Rifkin, Mason et al.).¹²

The new theories of transformation of capitalism are among the fashionable theories of the sharing economy, in which case capitalism is said to no longer be capitalism because in shared platforms based on network structures and digital technologies ownership is supposed to no longer be important. Allegedly, there are many firms that no longer operate on the capitalist principle. In them, people happily do their best, selflessly helping each other, cooperating and consciously sharing everything, providing services to each other. The workings of digital platforms are to be the central element of '*platform capitalism*' (Nick Srnicek). More sober voices curb the uncritical enthusiasm for what is said to be the groundbreaking nature of shared economy structures, which, in reality, in no shape or form overcome capitalism (or ownership), nor do they represent the responsible '*green*' project; rather they are nothing but a profitable business for powerful global players. The digital capitalism of platforms is even less humane and even more alienated than earlier forms. It destroys hard-won security and labour standards and returns capitalism to the way it was at some point in the nineteenth century.

Another New Economy?

The i4.0-based economy is said to be a revolutionary new economy 4.0. The term new economy (NE) itself is far from new. It has been used repeatedly, typically whenever there was a significant structural change due to new industries being born en masse while the old ones disappeared.¹³ NE is also sometimes associated with the expansion of economic democracy, even in the context of 4IR, etc.

The best known example of these ideas is the concept emerging in the 1990s of a NE and the new economies

of that period. The media were full of phrases about productivity growth as a result of the mass application of ICT, the boom of capital markets, and the development of new forms of trading, including a new logic of economic thinking. As with later theories, the principles and functioning of the NE linked to the digital revolution were to bring fundamental changes to all spheres of life. Nothing was supposed to be the same again. NE came to an abrupt halt after the turn-of-the-century bubble burst. With the dot.com bubble bursting, Americans realised that entertainment

12 On the other hand, there are also pessimistic concepts such as surveillance capitalism (Shoshana Zuboff), in which the transformation of industrial capitalism into financial capitalism is to bring about a permanent crisis and the emergence of surveillance capitalism as the third modernity, where unrestricted access to information is mere manipulation.

13 We are not hearing about a new economy for the first time. We need only mention James Tobin and Walter Heller or Amitai Etzioni. We already know of a number of '*new macroeconomics*' (for example, price models of imbalances), '*new microeconomics*', or even '*newly-new microeconomics*'. Fashion behavioural economics is often referred to as another new economy.

for immediate gratification, that downloading music and pornography, cannot endlessly stimulate and uphold the market.

Today we are witnessing the burst of the succeeding bubble. The so-called the '*second age of machines*' (Erik Brynjolfsson, Andrew McAfee) is intended to multiply not physical forces but the intellectual ones and thus sensationally help unleash the power of human spirit and creativity. 4.0 technologies are conceived as being simultaneously exponential, digital, and combinatorial. Revolutionary changes have allegedly already begun, unparalleled in the history of industrial development. We are to be transported into a fantastical future – into the 4.0 neverland – in which digital media replace real human interaction, and computers act as a substitute for human thinking. All human work will be carried out by robots through complete automation. We will all happily and enthusiastically share everything in our internet communities, controlled by artificial intelligence (AI). Nothing will be the same as before, and so forth. The icing on the cake is to be robotic self-driving cars.

The eulogizing tirades over the complex digitization, robotization, automation, AI, smart systems, Big Data are amongst the most fashionable, universally accepted truisms of today. However, the inflationary overuse of 4.0 terms tends to void them of any meaning. We are bombarded with tens, even hundreds of empty 4.0 phrases and idle 4.0 clichés. 4IR, Industry 4.0, blockchain, cloud computing, 3D printing, IoT (Internet of Things), or virtual reality have become buzzwords. They have become media shortcuts –overinflated perennials loved by the media. Moreover, everybody feels '*obliged*' to talk about them without any real comprehension of what they are about.

Similarly to the NE of the 1990s, 4IR is also interpreted as a natural inevitability to which we must humbly adapt. Above all, it is our way of thinking that has to change. Thus, new technologies are meant not to serve people; it is people who have to change to serve the new technologies; man should adapt to them for the sake of capitalist profits. As in the 1990s, innovation (and competitiveness) is an unquestioned and sacred component of the cult of constant change, interpreted as the automatically desirable

liberal Good. The new technologies are supposed to solve all problems. The media has something to write and dream about; politicians have, at long last, an optimistic vision; and it makes it easier for academics to get grants and funded projects. Originally a German marketing product, it has been successful in attracting the attention of the media, politicians, and the general public as well as the academic and research sector. A large number of strategies, projects, initiatives, prognoses, and attempts at theoretical generalisations have appeared, but they are frequently nothing more than techno-optimistic fantasies. The whole concept of 4IR is indeed significant, especially in terms of propaganda and psychology. The 4.0 activists continue to say that dramatic changes will come quickly or that they have already come. With the waving of a magic wand, robots are supposed to be cheaper and soon available to everyone.

At the same time, the 4.0 hype is often conditioned by sophisticated pressure from the new technology manufacturers rather than by real demands and needs of society. Constantly drummed into consumers' heads is the notion that iPhone technologies are '*cool*' and that nobody can exist without them.¹⁴ The allegedly revolutionary impact of (old-)new technologies is being deliberately and wildly exaggerated. However, even today's official voices sometimes quietly and diffidently admit that the 4IR will not be an epoch-making revolution but rather a gradual and long-term evolution (through AI, machine learning, cryptocurrencies, and autonomous vehicles). The more courageous among them indicate that it is increasingly clear that the whole 4IR concept is a hollow marketing notion and an excuse for advantages and business access to the chosen few. Even the Americans are beginning to realise that Facebook, rather than being a substitute for normal human relationships is merely a commercially profitable experiment and a way to identify their behaviour. It is, in the last analysis, clear that cars cannot magically drive themselves. And it is not true that within a few years the fully self-driving cars will dominate the transportation industry. Even many adolescents, regarded as the most eager of social network users, want to take time out from them. Digital detox keeps continuing to spread not only among young people. The enthusiasm for AR ('augmented reality') devices, which were meant to replace mobile phones and computers, has also been lost.

14 By buying high-tech gadgets, people are supposed to be joining progressively aware consumers in promoting liberal global 'goodness'. In the same way, holding cryptocurrencies is seen as part of a wider ideology.

The world is less and less taken by the cryptocurrency fever, the bitcoin bubble is slowly bursting, and the bitcoin revolution seems to have been postponed indefinitely. The chaos within cryptocurrencies and the efforts of the governments to regulate them are major contributing factors. Cryptocurrencies were supposed to overturn the old analogue world, but even this commodity proved to be fundamentally dependent on the capitalist market logic.

Investors are gradually beginning to sober up from the inappropriate techno-optimism. At the same time, the 'threat' to the developed world is becoming more and more evident in the form of a long-term slowdown in growth – a threat of secular stagnation¹⁵ which also includes the slowdown in productivity growth. This hardly jibes with the cheerful NE 4.0 slogans. Will the ever-present standard argument hold up – that is, that the effects of fundamental technological changes, generally applicable technologies (such as the proliferation of computers since the 1980s), will be reflected in productivity over a longer period – that, allegedly, the full benefit will be delayed? However, by contrast, ICT has been spreading faster than, for example, the use of steam energy.

The media and the market cultivate fashions such as IoT praising or AI science fiction, which creates the impression that we are in the midst of a dramatic ground-breaking revolution. However, macroeconomic figures, for example, on the development of productivity in the light of new secular stagnation, often tell us something different. Nor has the economic cycle disappeared, although it is distorted and modified thanks to state intervention, while the crises created by states themselves are appearing on the horizon. For several years now, warnings about another financial crisis have been growing, specifically a new wave of the

unfinished and unresolved Great Recession, and there is awareness that the financial system is now more indebted globally than ever before. Others predict that capitalism may soon be swept away by the super crisis – a '*mother of all crises*'. What will happen next? The predictions vary widely.¹⁶

The term techlash became the global buzzword of 2018. In 2019, the 4IR phenomenon did not take up as much of the media's attention as previously, but it in part took other forms.¹⁷ Climate alarmism or electromobility hysteria can be understood as the next phase of 4.0. But this does not involve a transition to a new technological order. The key remains the interests of multinational corporations, which seek to preserve the status quo with the help of the '*green religion*' and a targeted deceleration of the processes of new industrialisation (associated with new global and international competition and national technology protectionism). It prevents positive changes and the advent of truly useful high-tech applications (for example, electric cars are supported instead of hydrogen). The 4.0 bubble is collapsing, and therefore (hyper) globalisers are looking for other ways to save and sustain neoliberal globalisation.

15 See Janáček, Janáčková (2018).

16 For example, Wolfgang Streeck (Streeck, 2016) warns that we are entering a chaotic period of uncertainty, when capitalism will go under due to too many simultaneous ailments. The main diseases include stagnation, the oligarchic concentration of property, theft of public space, corruption, and global anarchy. None of these ills are being healed. Nor is there any effective opposition or anything real that can replace the capitalism, while the disappearance of competitive pressure from the no longer existing socialist community is a key factor. It is predicted that capitalism will fall to pieces, dissolving from the inside. Does this fulfil Schumpeter's prophecy about the self-destruction of capitalism? Schumpeter praised the process of creative destruction, while Streeck – looking at the US example – notes that capitalism has retained its destructiveness but lost its creativity.

17 On 3 February 2019, the Czech Republic's innovation strategy 2019-30 was adopted. Instead of the slogan '*Land of Stories*' (land of monuments, beer, and crystal), the idea of being a technological innovator was conveyed in the slogan '*4.0 Czech Republic: The Country for the Future*'.

4IR as the Next Phase of the Information or Digital Revolution?

The category of NE or the digital economy has often more to do with exploring the effects of technological advancement at the level of its practical applications rather than with fundamental research. The strategies of *Industrie 4.0* and on the like are more a matter of economic policy than of theory. On the theoretical level, therefore, some prefers to use categories such as the knowledge economy, the ‘*second age of machines*’ or just 4IR. The confusion in terminology persists and it is clear that it is sometimes deliberate.

The dating of technological, industrial, scientific, civilisational, and other kinds of revolutions varies, as it reflects different periodisations of history. Marxist periodisation oriented to the development of productive forces and production (or ownership) relations is still generally valid. Mainstream considerations, however, usually operate with the familiar division into pre-industrial, industrial and post-industrial (service) societies. Vague terms, such as super-industrial or information society, learning society, and learned society, or knowledge society, are frequently used and twisted to mean all manner of things. However, some view what is now occurring as a post-information wave and predict the arrival of a post-information revolution.

The 4IR is defined in terms of current trends in digitisation and automation. Many like to operate with the term ‘digital economy and society’. However, the slogans of the digital economy are not new and go back to the 1990s (Don Tapscott). Texts regarding the 4IR usually constantly – and almost suspiciously – emphasise that it is not only about digitisation. They also predict changes as coming more widely and faster than expected. Moreover, arguments about civilisational revolutions are emerging, according to which we are now witnessing – after the previous Neolithic and Industrial revolutions – a Third Digital Revolution. It is not supposed to change the current world, but to create another, a completely new, virtual one.¹⁸ So which conception is correct: 4IR interpreted as a digital revolution – which, of course, should have been the third industrial revolution – or the next phase of the digital revolution?

Klaus Schwab (2017) depicts 4IR as fundamentally different from the three previous industrial revolutions. 3IR allegedly began in 1980 and continues today. It is understood as a digital revolution, using analogue electronic and mechanical devices. Progress is reflected in personal computers, the Internet and ICT. Building upon the digital revolution, 4IR happens through significant breakthrough advances in which robotics, AI, nanotechnology, biotechnology, IoT, 3D printing, and autonomous vehicles play a key role. The World Economic Forum emphasises cybernetic-physical systems (CPS) in the popular IR scheme or as in Mařík et al. (2016) for 4IR.

Some speak of the information revolution (also information communication) as one of the stages of 2IR or 3IR. Some call this an independent industrial revolution, the fourth technological revolution. It is dated from the 1970s (new IT, 1971 – the invention of the chip, after 1975 – new industrial biotechnology, new methods of processing raw materials and searching for new energy sources). Others associate its beginning with the late 1960s or 80s in relation to the different approaches to dating the onset of contemporary globalisation – that is, 4IR as the next phase of the information revolution. Or is this supposed to be an independent digital revolution, the fifth one in succession?

Alternative concepts operate with 1IR divided into the first stage (c. 1770-1870) and the second (the last third of the 19th century up to the Second World War), with 2IR (science and technology, STR) divided into the first ‘*atomic*’ stage (1940s-70s) and the second ‘*information*’ phase (from the 1970s). 4IR could thus represent the third, ‘*digital*’ stage of 2IR. Three stages of industrialisation have also been identified, three stages of STR: 1. STR (steam engine), 2. STR (electricity), 3. STR (IT or ICT). Here, 4IR would be a continuation of the third STR. A further integration of i4.0 technologies with the third, not the fourth industrial revolution also occurs in the literature (Jeremy Rifkin). Others connect i4.0 technology with the sixth technological age (Carlota Perez). Valenta (Valenta, 2001) predicts a second

18 The so-called 6D Revolution (Pavel Kysilka), driven by digital innovations, with six features: 1) digitisation, 2) dematerialisation, 3) demonstration, 4) democratisation, 5) ‘deceptiveness’, 6) ‘disruptiveness’.

technological revolution – the transition from macrotechnologies to microtechnologies (as the innovation order 9). He associated the beginning of the real NE (and V. K-waves) with the emergence of microtechnology and starting with microelectronics at the turn of the 20th to the 21st centuries.

The Magic of V. (or VI. and VII.?) Long K-Waves

In the approaches developed in Czechoslovakia we also have worked with the innovative mechanism of long Kondratiev waves, especially the long K-waves of the Kondratiev-Schumpeter type,¹⁹ including Valenta's elaboration. Their use does not contradict the basic postulates of Marxism-Leninism – the dialectics of productive forces and production relations with the connections of the base to superstructure, or the economy to politics.

The innovative logic of K-waves leads to the following sequence of IRs: 1IR (whose core occurred from 1760 to 1830), 2IR (also technical science, occurring essentially between 1873 and the Second World War), 3IR (also STR in the narrower sense) from the Second World War until today, including the 3IR stages whose interpretation may vary. Therefore, it is possible to identify three Industrial revolutions to date (the Technological Revolution but sometimes also STR in a broader sense). 1IR begins with the application of the steam engine in the textile industry (ca. 1770-1815), then in railways and shipping and other sectors (1830-70 – the rail era). This began in England and spread elsewhere. Followed by 2IR with the use of electricity, the internal combustion engine, 'great' chemistry, and telegraph between 1873 and World War II. 3IR follows after, launched by World War II, with the first – atomic – stage marked by nuclear energy, electronics, synthetic chemistry, cosmonauts/astronauts (1940s-1970s). The second is the information phase, associated with microelectronics, telecommunications, later with the Internet or biotechnology (from the 1970s to 1980s). And i4.0, or 4IR (approx. since 2010) can represent its next stage – the stage of mass digitisation and cybernetics.

This corresponds with the innovative long K-waves in industrial history. Industrial society begins with the boom of the 1IR in England. This becomes the material base of the First K-wave (1780 / 90 to 1844 / 51), consisting of the phase of long expansion (1780 / 90 to 1810 / 17 (upper turning point)) and long depression (1810 / 17 to 1844 / 51). The Second K-wave goes from 1844 / 51 to 1880 / 96, while the long expansion of the years 1844 / 51 to 1870 / 75-76 (upper turning point) is based on the development of railways, metallurgy, and engineering. The Third K-wave covers the years 1880 / 96 to 1939 / 45. The long expansion of the years 1880 / 96 to 1914 (with the turning point in 1914-17) exhibits new forms emerging from the past depression and is based on the development of 2IR. The Fourth K-Wave comes in the storm of the Second World War and is carried by 3IR. Its dating is not uniform: 1939/45 to originally about 2000 (but also earlier). The long expansion lasted from 1939/45 to 1965/70. The period of 1965/70 (upper turning point) begins the long depression of the Fourth K-waves. But what is next? The originally predicted Fifth K-wave, with the 2020/30 turning point, remains highly questionable. According to Valenta, the Fifth Long K-Wave was supposed to start with the Internet in the US in the 1990s. By this logic, after 20 to 25 years, its respective W-wave should be carried by today's revolution 4.0.

All these periodisations coincide with four K-waves until the second half of the twentieth century.²⁰ Concerning the termination of the Fourth K-wave and dating of the other waves there is already significant difference of opinion. The hypothesis of shortening long waves of the 20th and 21st centuries is popular. Many authors work with the Fourth IR,

¹⁹ For details see Sirůček (2016).

²⁰ Their dating is always approximate and relates to the most advanced country or countries. The turning points of economic long waves broadly create historical backdrops for revolutionary events of war, revolution, social, monetary turning points, etc.

which they associate with the Fifth K-wave (with different dating, with the onset at some point between the 1960s and 90s), including connections to the NE 1990s concept. Models of other waves appear. Leo A. Nefiodow²¹ presents the following K-cycles: 1. (1780 to 1830 / 50, steam engine, textile industry, clothing), 2. (1830 / 50 to 1870-90, railways, steel, public transport), 3. (1870 / 90 to 1920 / 35, electrotechnology, chemical industry, mass consumerism), 4. (1920 / 35 to 1950 / 80, cars, petrochemistry, individual mobility), 5. (1950 / 80 to 2000 / 2005, ICT), 6. (from 2000 to 05, biotechnology, psychosocial health, holistic health). Leonid Grinin and Anton Grinin²² date the Sixth K-wave from 2020 / 30 to 2050 / 60 and associate it with MBNRIC (med-bio-nano-robo-info-cognitive) technologies. In particular, they highlight health services and fully scientific cybernetics. For the Fifth K-wave (1980 to 2020), microelectronics, personal computers, highly skilled services should be the key. The cybernetics revolution of the Sixth K-wave could partly correspond with i4.0.

Other interpretations, however, point towards a protraction of the Fourth Long K-waves and considerable complications with the launch of the Fifth Long K-waves, at least on a global scale.²³ In the 1990s, the expected full launch of new technologies, mainly ICT, did not occur and the NE bubble burst. The introduction of new technologies may have been deliberately delayed, as developed countries can prolong the phase in question (by debt, financialization, and militarization) and thus *'buy time'*. This is true also in connection with the involvement of new countries and markets after the fall of the socialist bloc. By the end of the first decade of the 21st century, the unexpected Great Recession has come. It could have acted as a *'cleanser'* pre-

paring the historical terrain for the full application of new technologies. So are the i4.0 technologies bringing the anticipated Fifth Long K-wave? With its emergence delayed by about 10 / 20 years, mainly under the influence of the fall of the East, which benefited the West and slowed the pressure for a more massive implementation of the new technologies.²⁴

If we combine the launch of the Fifth Long K-wave with the events of the Great Recession, it should be remembered that many Asian countries recovered better than the West did, lagging behind as it did. Could, therefore, the *'magical'* Fifth (or other) Long K-wave be the Chinese (or Asian) wave – or, to be more precise, with its centre in Asia? The whole concept of 4IR – as a European affair in particular – would then logically represent an attempt to reverse the unfavourable trends and prevent further Western European downturns.²⁵

Another scenario strongly points to the fact that the world is dangerously treading water in the transition phase, that is, the chaotic intermediate stages associated with the end of the Fourth Long K-waves. Contemporary turbulence may be linked to the formation crisis of the end of the Fourth Long K-waves. Previous formation crises (1848, 1896, 1939-45) had their preludes. These preludes of the formation crisis of the past, associated with Second World War, was the Great Crisis, and the war was its turning point or culmination. The beginnings of the current formation crisis, that is, its prelude or preludes, may be associated with the events of 1989, 1991, 1998, 1999, 2001, 2003, 2008, or later. The more plausible dating begins in the new millennium as the dismantling of the socialist system benefited

21 See Nefiodow (2015). The Fifth K-cycle was supposed to end the 2000-2003 crisis. The carrier of the Sixth K-cycle ought to be health in a holistic sense, including physical, mental, social, ecological, and spiritual health. Basic innovations are represented by psychosocial health and biotechnology.

22 See Grinin (2014).

23 See Sirůček (2016, 2019b) and Švihlíková (2010).

24 The slow arrival of the Fifth K-wave may also be related to the expansion of the space in which the interrelated economic processes take place. Another explanation for the delay points out that the nature of activities is to drive the new global expansion. For these, the capitalist limits can already be narrow. The role may be played by the fact that in some spheres (for example, the space industry) an increasingly important role is played by private companies, with state agencies yielding their positions to the latter.

25 The new era of globalisation is coming. Is Europe or Asia better prepared for it? What harms and impedes the West, especially Western Europe, from responding adequately to new historical challenges? The answer is politically incorrect and unpleasant for many: liberalism. More precisely (hyper-)liberalism with a decayed concept of so-called liberal democracy, which has become a propaganda motto, for it is neither democratic nor, in fact, liberal.

the West significantly and delayed the onset of the crisis. However, the current formation crisis may be longer and much more complicated. The technology development creates preconditions for the end of the entire industrial history of mankind, which means that the '*post-industrial*' long K-waves can be significantly modified. Consequently, it is not clear what cataclysm will be associated with the breakthrough or climax of the formation crisis.

The situation is further complicated by the fact that different parts of the world are in different stages of the long-term technological, economic, and socio-economic cycles, which may differ significantly in the new conditions. The possible concurrence of economic cycles of different lengths (for example, J-waves, W-waves and K-waves at the end of the first decade of the 21st century, like a '*perfect storm*') may also play its role. Finally, it has been pointed out that new technologies may bring changes so fundamental that the current global system would become virtually unsustainable. For their full development, the possible Fifth and other K-wave technologies need different condi-

tions and different '*rules of the game*'. We should add that the upper turning points of the long K-waves may, in turn, be associated with the opening crises (1810, 1871, 1917, or 1968), raising revolutionary historical issues and historical challenges, including systemic changes in the social order.

Thus, the long K-wave theory does not lead to unambiguous conclusions but is associated with several open, unresolved issues. At the same time, however, it opens up room for critical reflection. In the light of the chaotic development of the 21st century, other approaches, including the entire standard economic theory, find it difficult to explain reality. Not only was no one able to predict the Great Recession but the mainstream is still unable to offer an adequate explanation of it. Especially in macroeconomics – as a highly formalised science – its desperate inability to predict, and only crises, is already glaringly obvious. The lack of consensus concerns not only long-wave theory; it also applies to the 4IR concept and vision. A real new economy practice) and a new economy theory are still not there.

The Meaning of i4.0 and the Tasks of the Left

The 4IR may not be fourth in line, but second, third or sixth. Is it a ground-breaking revolution or a phase of the revolution already in progress? Let us return to the chronology of IR and ask ourselves: what are the criteria for these revolutions? They are often unclear and vague. In the context of the innovation logic of the K-wave, the epochal innovation criterion was applied above.²⁶ Their clusters induce the long K-waves, and their powerhouses can be identified. However, it is not necessarily the case that each K-wave always corresponds exactly to the whole IR. Are the i4.0 technologies epoch-making? The schismatic nature of some of them are evident, but whether they are revolutionary and ground-breaking remains questionable.

In the 1990s, everything had to be transformed by the Internet. It had a huge impact, but has it changed the world

to the point that nothing can be the same again? Many decades have passed while we have waited for the miraculous effects of biotechnology or nanotechnology. Already before the 4IR we heard that everyone would soon be printing everything on 3D printers. What is the revolutionary argument of the 4IR? Let us disregard the uncritical fantasies about the divine AI or the immortality of man evolutionarily associated with machines.²⁷ Industry 4.0 is primarily the concept of automated and digitised production, coupled with '*smart*' factories where the process of manufacturing is to adapt to the product. The media's most laudatory term is '*smart*': '*smart*' cities, including '*smart*' devices, networks, transport, or regions. '*Smart*' production is the basis of a '*smart*' economy and its management and administration (where '*smart*' people enforce sharing and co-consumption, electronic communication with the city

26 These are the highest order innovations, fundamental radical innovations as Valenta understands them. According to Resp. o basic innovations (giving rise to new sectors according to Gerhard Mensch) and major innovations according to Schumpeter.

27 Technologically misguided visionaries, like Raymond Kurzweil, are at the same time very tough businessmen.

and authorities and have unified access to public services physically and online), or 'smart' companies 4.0 (with plebiscites, referenda).²⁸ They use CPS, complex and system automation, digitisation and robotisation of production and services, AI, Big Data, cloud computing, the Internet of physical items or objects, and the Internet of services (IoT and IoS, broader IoE as the Internet of everything), etc.

Technological conditions significantly determine developments in other spheres (increasing in inequality, oligarchisation, militarisation in the form of limited wars, climate problems, etc.). The importance of technological change must not be underestimated in relation to the increasing (mega) trends of deglobalisation, localisation, and disintegration,²⁹ which the new technologies not only enable but also significantly strengthen. But are the above-mentioned trends really so epoch-making? Rather than a ground-breaking revolution, this would seem to be another stage in the evolutionary development of computerisation, digitisation and robotisation, which includes the further mass application of more advanced technologies arising from the information or digital revolution to the manufacturing and service spheres. It represents yet another mix of economy, that is, broader knowledge within an information, digital, and networking society. Industry 4.0 is neither revolutionary nor ground-breaking, but of course that does not diminish its significance.³⁰

The 4IR is not a change in paradigm or ground-breaking revolution unprecedented in the history of industry and

humanity. It is a contemporary phase of digital transformation, both locally and globally. It would be more accurate to speak of the next stage of the information, digital, or STR revolution than an epoch-making civilisational change. The attractive 4.0 slogan, however, took root and entered the consciousness of people and now has a life of its own. It is a strategic initiative of the West, a political and marketing project intended for the general public, the media, and politicians, with a particular propaganda and psychological function. Rather than an expression of strategic modernity, it is a media and academic construct, with a calculated overestimation of the effects of the next phase of mass digitisation and robotisation, mainly in industrial production. In the end, the new production possibilities are likely to stay within capitalist limits and remain reserved for a particular group of firms and corporations from the so-called developed world. The predicted benefits of 4IR are mostly apply to the developed countries (growth of competitiveness, creation of new production capacities, the disappearance but also creation of new jobs) and represent a serious threat to other countries (BRICS or Southeast Asia), which are expected to be more cost-conscious and vulnerable. The I4.0 technologies will have not only winners but also many losers.

The bestsellers include texts that warn against the overuse of digital ICT, social networks, and severe addiction to them. Terms such as digital dementia and cyber-illness (Manfred Spitzer) or '*dangerous shallows of the Internet*' (Nicholas Carr) are already commonly used. The authors

28 Staněk and Ivanová (2017) think in terms of civilisational ruptures. The I4.0 is associated with the possibility of humanist society 5.0 with personalised companies, including personalisation of information which is trust-based; with information shared between the citizen and the state, the citizen and the producer, the citizen and the municipality, as well as among the citizens.

29 The effects of 4IR include shortening production and supply chains, both organisationally and geographically. Industry 4.0 offers hope for renationalisation and reindustrialisation and can help localisation and decentralisation. There are ever more predictions of '*the end of the golden age of globalisation and world trade*'. It is supposed to strengthen localisation, with production moving closer to consumers. Even neoliberal globalists find that the idea of moving all production out of the home country was perhaps the best solution of all. This included the widespread illusion that the Americans would be the managers and designers, and the Asians would be the hardworking bees who only produce.

30 It will have significant impact on the Czech Republic in terms of the neocolonial character of the Czech economy, that is, cheap extended production lines based in Germany, assembly lines, and warehouses. The Czech Republic has the image of '*cheap country for the production of cheap components*'. Also important is the share of the automotive industry, where robotics is progressing the fastest. Should not the Czech Republic start already to focus strategically on Industry 5.0 technologies – not only to capture trends 4.0 as a '*cooperating partner*' (Mařík et al., 2016). Japan, for example, intends to solve its longstanding problems with the concept of company 5.0 – the next stage of digitisation and the deployment of AI. The vision, using the technologies of IoT, AI, CPS, Big Data, etc., should be the path to a so-called super-smart society. Societies 5.0 represent here the fifth stage of the development of society – after societies of hunters-gatherers, farmers, industry, and information.

are ostracised as having issued a '*proclamation of the digital apocalypse*'. Their works are certainly popularising books rather than research papers, and they sometimes exaggerate a little, but their warnings should not be completely unheeded. They include the question of why in the present context full of regulations and prohibitions, digital media and, more broadly, digital ICT, are not adequately regulated? Astronomical financial gain and huge power are at stake. Hard lobbying, effective propaganda, or misleading advertising are closely linked to digital ICT. Most analysis of new technologies overlook or underestimate its serious risks and threats. In the spirit of techno-optimism, they glorifyingly outline only fantastic positives and amazing perspectives. They remain silent about the technologies applied within capitalist parameters that deepen inequality and destroy economic and social security.³¹ The problems of safety, manipulation, monitoring, restriction of a lifestyle choice, or the dependence of human beings on technology with the latter operating as a dictate over people are usually mentioned only in general terms.

The political left, that is, what is called the left, is often characterised by a fanatical obsession with everything digital. The potential of digitisation cannot be overlooked, but digitisation is not a goal itself; rather it is a means, a tool. And it is certainly not synonymous with social progress. It is necessary to look more closely at the impact on sharing among the network structures and to mitigate the uncritical enthusiasm over the '*uberisation*' of the economy (that is, labour and services mediated by digital platforms), finance (fin-tech revolution, InsurTech), and society as a whole (with large networks where people should be both employer and employee). However, these platforms also require rules and regulations. Even the connection of

participation to the universal expansion of the space for economic democracy will not be automatic in the new '*networking era*', as many naively dream. It is fashionable to almost religiously worship the sphere of emerging industries, which covers the entire digital economy and '*cultural and creative industries*', in other words industries based on digital technologies or forming new value chains. Often, however, the absence of content and in many cases the parasitic character of socially unnecessary professions is masked with flowery phrases.³² Nor should we forget that technological progress needs something tangible, including real physical infrastructure. Even research and development cannot do without a factory at a certain point. Although the importance of intangible assets has been increasing from the beginning of the twentieth century and the importance of intangible investments (R&D, software, design) keeps growing, it is foolish to conclude that material is no longer needed.

When the time of change comes, the political left must not go in circles as in today's utter ideological emptiness and helplessness. How then should the real left respond to the 4.0 challenges? Materially-based science fiction means not fantasising about the '*epoch-making era*' or the amazing '*revolution in thought*' but to realistically approach the objective possibility of a '*civilisational crossroad*' using the scientific method of the real classics of Marxism-Leninism,³³ with the return to dialectical and historical materialism, including the economic foundation of Marxism. It is important to adopt Marx's concept of development as a part of natural history as well as to apply Marx's conception of the relation of the social base (conditioned by the position of people within the relations of production) to the superstructure (political, ideological, and moral). It is

31 New technologies will strengthen the position of capital and its owners (and, in the case of restrictively conceived intellectual property protection, the position of rentiers). The factor of labour will most likely be further significantly weakened. This may have a negative impact not only in terms of unemployment but also on increased job precarity (for instance, zero-hour contracts), working poverty, etc.

32 Many jobs under capitalism are not effective and their social benefit is nil, if not negative. However, according to Toms, economic efficiency ought to take into account not only the economy but also the socially beneficial effects.

33 Including Lenin's still valid definition of imperialism. While the character of capitalism as laid out by Marx also applies to monopoly capitalism, Lenin's new qualities cover five economic features. Also, the historic site of imperialism is characterised by a triple purpose – as monopoly capitalism, parasitic and decaying capitalism, and dying capitalism. The dying of capitalism, however, does not exclude the possibility of its adaptation to the new conditions, which is what happened in the twentieth century. And it does not contradict the concepts of state monopoly capitalism or global capitalism. On parasitism and the decaying of contemporary global '*rentier*' capitalism see Švihliková and Tejkl (2017).

necessary to patiently disprove the delusion that the issue of ownership should be marginalised. Marxism without the key role of ownership relations is no Marxism at all. The return to the true nature of the contradictions must not be based on a naive reliance on shared platforms but requires an adequate elaboration of the category of social ownership: state, cooperative, local, and, last but not least, self-governing.³⁴

Nevertheless, the key emphasis on the economic essence of Marxism does not mean that the subjective element of social development should be overlooked and underestimated.³⁵ Marxism cannot fall into the trap of technological determinism. Innovation and new technologies are not miraculous or almighty, and certainly will not automatically establish a more socially just system; in fact the opposite happens to be true. Nor will they solve the burning issues, whether globally or locally, such as the environmental crisis.

Adequate responses to social challenges require ambitious visions as well as sophisticated policies. The reincarnation of society-wide planning, including regulation and control of scientific and technological progress, is not economic romanticism but a systemic necessity for the survival of civilisation and humanity. Education is one of the key spheres, but its standards are constantly falling. The main causes of its destruction are progressive modernisation efforts and disproportionate liberalisation. It should not firmly understood that schools and education are here for children, not

for the needs of industry 4.0 or 5.0. The goal must be a general personal development, not a flexible preparedness of employees for full utilisation in the situation of permanent uncertainty and accommodation to the whims of capitalist markets.

The real left should speak firmly against the anti-civilisational dystopia of *'antiwork'*. Through automation, robotisation, and digitisation, humanity is to be freed from the biblical *'curse of work'*. For postmodern man, work is no longer thought to be needed and/or be his badge of honour to make him respectable.³⁶ It is assumed that a person in idleness automatically becomes more tolerant, educated, and happier. From here the poster vision is derived of how every unemployed or out-of-work person consciously uses the surplus of his free time for personal development, education, engaged creativity, handicrafts, neighbourhood cooperation, creative realisation in charity, sports, or finding fulfilment in family and community life, including enthusiastic volunteering and sharing. Realists, however, warn that non-workers will also have less money. This issue should then be resolved by a basic unconditional income.³⁷

In the spirit of *'capitalist communism'*, an idyllic picture is painted of the world where billions of unemployed people enjoy their inactivity. This is to occur while capitalist markets, money, and private ownership of critical assets, including robots, are preserved. Ownership is no longer to be important, yet it remains sacred and untouchable. This

34 See Heller, Neuzil et al. (2011). Examples of Czech unorthodox Marxist thinkers include Josef Heller (1947–2018) and Miroslav Ransdorf (1953–2016).

35 The subject of change also includes questions of the avant-garde. But who are they today? The cognitariat, the precariat in the spirit of Guy Standing? Or the pre-Progressive Progressives as the avant-garde of liberal progress? Swamps of deep state?

36 Only robots ought to work, it is thought. In a similar spirit is the widespread notion that everyone will live on subsidies. Useful and honest work is supposed to be old-fashioned and highly uncreative. Conclusions are drawn from labour-market research, pointing to labour insecurity, discrimination, and other injustices. Supporters of *'antiwork'* critically point to the issue of unemployment, but their outcomes and recommendations are completely wrongheaded. Instead of making the necessary changes and reforms, they accept the notion there is no work, and then construct evidence to show that it is no longer needed.

37 But what happens if paid work ceases to be the centre point of people's lives? Will this not create disruption, with barbarism ruling? Will it bring total anarchic disorder, with no discipline, order, authority, responsibility, and motivation? In addition to unconditional income, shortening working hours is discussed – in the form of an extension of *'part-time'*, which could complement unconditional citizens' income. One would work several hours, several days a week and have a sense of being useful to society.

scenario does not jibe with Marx's ideas about free time,³⁸ nor with the ideal of a fairer, more just society. Rather, it is a re-feudalisation of development, a monstrous technological slavery – in line with the Orwell's and Huxley's apocalyptic vision of a global digital concentration camps. Why should capital waste its means on those who are relatively superfluous (as producers) and absolutely superfluous (as consumers)? Because capitalists are supposed to be socially responsible?

Instead of constructing pseudo-problems, the left must begin again to strongly defend the social rights and interests of the majority, in the form of underprivileged working people. Instead of so-called discrimination, it should address exploitation. It must patiently explain that labour creates all wealth. However, it will never be normal not to work; on the contrary, the concept of work can be expanded. The responsible left must rehabilitate socially beneficial work. It must try again to ignite enthusiasm for work and the enthusiasm for building a more socially just future and restore the belief that it is worth working hard and honestly and to be really good at something that is useful.

Finally, let us remind ourselves that the precondition for all of this is the preservation of peace. In the past, the left fought for peace actively and effectively. But since the 1990s, the struggle for peace has disappeared. Today, however, the danger of belligerent confrontations is increasing dramatically, and the renewal of this struggle is relevant and necessary.

38 For example, in the *Grundrisse* or Marx's 'Fragment on Machines', describing a hypothetical scenario of the dynamics of overcoming capitalism through internal contradiction, where the 'general intellect' becomes the main productive force with the development of automated industry. This is also interpreted as a prototype of post-industrial or information society and the digital revolution – see Richta et al. (1966) or Jurásek et al. (2016), and Valenčík and Wawrosz (2019).

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On the transform! europe **website**, you can find reports on current events relevant to Europe, as well as analyses of economic, political and social topics. In order to enable direct exchange between politicians, academics and activists involved in social movements, our calendar provides

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email: transform@prruk.org

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* Observers

Contact us

transform! europe

www.transform-network.net
office@transform-network.net

+43 1 504 66 86

Gusshausstraße 14/3, 1040 Vienna, Austria



transform! europe

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