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INDUSTRIAL REVOLUTION 4.0 - A NEW WORLD ORDER?

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In history, we have already experienced three industrial revolutions: the first industrial revolution took place between 1760 and 1830. It was the transition to new production processes that started from Great Britain, so that in the middle of the 18th century the British became the world's leading trading nation, controlling global trade through their colonization, and subsequently becoming the hegemon in the world order. The second industrial revolution is dated to the period between 1870 and World War I. It was the technological revolution, that still emanated from Britain, so that it could strengthen its hegemonic power. The third industrial revolution, also called the digital revolution, took place between 1947 and the beginning of the 21st century. The digital revolution begun in the United States of America, and the new revolution made the U.S. the leading country in global trade. The U.S. became one of the strongest countries in the world order and became a new hegemon. So, as we can see from the first three industrial revolutions, whoever leads the revolution will be the newest power in the new world order. The fourth industrial revolution has already begun in the 21st century, with Asian countries such as China, South-Korea, Singapore, etc. leading the new technological developments. Will Asia be the new world power through the Industrial Revolution 4.0? This paper attempts to answer this question by examining the relationship between industrial revolutions and the world order.

Keywords: industrial revolution, world order, Asia, tech war

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1. Introduction

In the first three phases of the Industrial Revolution, the regions and countries that were at the forefront of development eventually gained considerable influence not only in the world economy, but also in world politics, and thus played a decisive role in shaping the world order. In the first decades of the 21st century, we are witnessing the emergence of the fourth industrial revolution, but unlike in the past, Asian regions¹ are at the forefront of development, and the geopolitical importance of the coun-

tries concerned has increased as the center of gravity of the world economy has shifted eastward. One can speak of the emergence of a Eurasian era, in which economic, political, and military power is increasingly shifting to the East, while the Atlantic region is losing its central weight. As a well-known geopolitical expert, Parag Khanna (2019, p. 36), has said, the world is becoming Asian. At the same time, a new, multicentric world order is emerging in which the unity of Europe and Asia takes on new meaning through connectivity and complexity, and the 21st

¹ In this study, the term Asia is used to refer primarily to East, South and South-East Asia.

century is no exception. Peter Frangopan (2019, p. 266) examines China's Belt and Road Initiative (BRI) and already writes about the emergence of a Eurasian supercontinent. According to Bruno Mações, we are witnessing the emergence of a new world map in which the rise of Asian countries, in parallel with the weakening of American global power, is shifting the balance of power eastward and creating a new geographical entity from Lisbon to Jakarta-Eurasia. Among the power centers of the supercontinent, China plays the most important role as the country works to create a new global economic system centered on China through land and sea transportation corridors, thanks to the BRI program (Mações, 2018, p. 235). Kent E. Calder (2019, pp. 71-85) contends that the center of post-Cold War economic growth has shifted to East Asia and that the reshaping of geopolitical relations and the reunification of Europe and Asia herald the birth of a new supercontinent based on the European-Chinese partnership. In addition, logistics and the IT revolution (fourth industrial revolution), the political and economic transformation of Europe, East, South and Southeast Asia, also play an important role in the story.

This paper hypothesizes that industrial revolutions and world order are closely related, that is, the unfolding of the fourth industrial revolution will undoubtedly contribute to the emergence of a new world order in which Asia can play a leading role. After summarizing the significance of the fourth industrial revolution, we briefly outline how it is unfolding in key regions of Asia, what opportunities it offers for the region, and which countries could play a central role in the new world order (for reasons of space and without claiming to be exhaustive, only those countries/regions that we consider to be the most important in geopolitical terms are discussed).

2. The meaning of the fourth industrial revolution

The Industrial Revolution has fundamentally changed humanity's relationship with nature, the way we produce economically, and thus our daily lives. The process, which first took place in the British Isles through the original accumulation of

capital and civilization, continues today-but now on a global scale.

The Industrial Revolution can be divided into distinct phases spanning a quarter of a millennium. The classification most widely used in the literature distinguishes three periods, based on the technology that had the greatest impact on the economy: the first period of the Industrial Revolution-also called the First Industrial Revolution-last-ed from the 1760s to the 1840s, with the steam engine as the most important invention, replacing the use of animal power in agriculture and enabling mechanised production in industry (Harvey, 2017). The most important technological achievement of the second industrial revolution, which lasted from about the 1870s to World War I, was the widespread availability of electricity and the mass production that accompanied it (Luenendonk, 2017). The third industrial revolution began in the second half of the 20th century-around the 1960s-and was characterised by electronics, information technology and the automation of production.

Today, we are talking about a fourth industrial revolution, which builds on the digital revolution of the third phase, but is a new era because of the speed, scale and impact of technological progress on systems such as production, management and governance, "said Klaus Schwab, founder and CEO of the World Economic Forum". The fourth industrial revolution is characterised by a fusion of technologies that blurs the boundaries between the physical, digital and biological spheres, transforming not only disciplines, economies and industries, but also raising questions about the nature of human beings (Schwab, 2016).

The new era, also known as Industry 4.0, is characterised by inventions and research directions such as artificial intelligence, robotics, the Internet of Things, self-driving cars, 3-D printing, nanotechnology, biotechnology, materials science, energy storage research and quantum computing (Schwab, 2016).

The fourth industrial revolution also holds great economic potential for developing countries. One of the benefits is that small-scale production is becom-

ing more competitive thanks to inventions and the Internet, including cheaper automation, the ability to customise products for a wider range of consumers, and cheaper raw materials (Naudé, 2017). In this context, Erik Brynjolfsson and Andrew McAfee describe Heartland Robotics' efforts to produce low-cost robots that "fit in a box" and "enable small businesses to set up automated factories, significantly reducing production costs and increasing production flexibility." (Brynjolfsson & McAfee, 2012).

The technological innovations of the fourth industrial revolution can therefore empower small businesses by enabling more and more people to set up small-scale flexible production that is competitive with large companies. And these new companies, while not generating billions in profits, can create millions of new jobs that have a greater impact on the labour market than a single large company (Brynjolfsson & McAfee, 2012).

China and India are also currently at the forefront of technological innovation and therefore could become leaders in certain sectors of the economy alongside developed countries like Singapore. Solar energy in China and the Make in India investment promotion programme in India can ensure competitiveness on a global scale. While the innovations initiated by China and India are essentially aimed at increasing the productivity of the large companies concerned and strengthening their influence abroad, the smaller Asian countries support the successful establishment of micro, small and medium-sized enterprises on the global market. In ASEAN member states, 90% of trading companies fall into this category. For this reason, ASEAN also promotes collective cooperation among innovative economies (Nair, 2017).

3. The unfolding of the fourth industrial revolution in Asia

3.1. The role of education

For the Asian continent to take advantage of the opportunities offered by the latest phase of the industrial revolution, two basic conditions must be met: adequate skills and infrastructure.

A number of studies have already demonstrated the link between education and a country's econom-

ic performance: before the turn of the millennium, Barro showed that an extra year spent in the education system (i.e. a one-year increase in average educational attainment) induces a 1.2 percentage point increase in the economy per year (Barro, 1996). Wilson and Briscoe calculated that a 1% increase in the school enrolment rate (for boys, after primary school) is associated with a 1-3% increase in GDP per capita (Wilson & Briscoe, 2004).

In the context of the industrial revolution, education is essential to enable people to apply the achievements of the industrial revolution, to adapt them to their own environment, to improve their environment and to come up with new innovative ideas, processes and solutions. South Korea, for example, is exceptional in this regard, as it is one of the highest performing countries in the OECD in reading literacy, mathematics, and science, with an average student score of 519, compared to the OECD average of 489, ranking ninth in the world. The country has one of the best-educated workforces in the world among OECD countries and consistently ranks high in global education rankings (OECD, 2018).

On the other hand, education can also play an important role in countering the threat of automation, as the replacement of human labour by robots is (and will be) prevalent in jobs with lower levels of education. According to a survey by the Khazanah Research Institute, for example, 54% of workers in Malaysia could lose their jobs in the future due to automation, 90% of whom are skilled workers. But by retraining and upgrading skills levels, it is possible to employ the affected workforce in other segments. But Malaysia has also spent huge sums on developing higher education, with a number of Foreign Branch Campuses established in the country to improve the quality of education, and the number of students coming from abroad reaching 100,000 by 2022 (SharifStudy, 2022).

In the case of the most populous developing countries, progress has been impressive, with the share of higher education students increasing from 15 to 30% in China, from 11 to 25% in India and from 15 to 32% in Indonesia in the last 10 years.

This share rose from around 2.5 percent in the mid-1990s to over 4 percent in 2012, but has tended to stagnate in recent years (Statista, 2020).

3.2. Developing infrastructure

According to a 2017 report by the Asian Development Bank, the Asian continent will need \$1.7 trillion worth of annual infrastructure development by 2030 to remain competitive. Broken down by sector, this translates to \$14.7 trillion for energy, \$8.4 trillion for transport, \$2.3 trillion for telecommunications and \$800 billion for water and sanitation between 2016 and 2030. There are significant differences in infrastructure development between regions, and excluding China, the infrastructure gap (the difference between investment required and investment made) is as much as 5% of each country's GDP (ADB, 2017).

Between 2001 and 2010, the road network in the continent's developing countries grew 5% per year faster than the OECD average. However, a large proportion of countries still have less than 500 km/1000 km². The poor quality of roads also hinders connectivity between regions and makes trade more expensive. From a trade development perspective, the construction of highways is a positive development that significantly increases interconnectivity between regions (ADB, 2017). China is leading the way in highway construction, having recently announced that plans to build a 461,000-kilometer highway network by 2035 and expand it into a world-class network by 2050 (Global Times, 2022).

The extent and quality of the rail network are below the OECD average, although they are better than in other developing countries. The density of the rail network is below the world average of 23 km/1000 km². Of course, there are large differences between regions: While construction of modern high-speed railroads is proceeding rapidly (China has already built more than 25000 km), many areas are struggling to operate conventional passenger and freight services (e.g., India).

In the wake of the Covid-19 epidemic, many of the countries concerned have realised that infrastructure development can play a key role in eco-

nomical recovery. For example, a major focus of the Vietnamese government's economic stimulus programme is to accelerate public investment, particularly in key transportation projects. On June 19, 2020, Vietnam's National Assembly approved public investment in three sections of the North-South Highway, changing the financing format from public-private partnerships (PPPs) (Deloitte, 2020).

In the latest phase of the industrial revolution, the Internet and, more broadly, information and communications technologies (ICTs) are of paramount importance because they enable global connectivity, for example, among economic actors by reducing geographic distances to zero.

In Asia, for example, the Indian government has taken measures in recent years to adapt to the demands of the fourth industrial revolution and has been a major driver of the digital economy, from which small and medium-sized enterprises are also benefiting. In particular, the proliferation of mobile app-based payment technologies, which are accessible to more and more people thanks to low-cost cell phones, has been an important factor (Anil, 2017). Alipay, developed by Alibaba in China, and its counterpart PayTM in India have quickly gained popularity, while similar technological innovations are also spreading rapidly in Southeast Asia.

Asia has also made great strides in the use of digital technologies. The number of Internet users is growing steadily, with 124,000 new users per day in Southeast Asia—a world record (Seiff, 2017). However, even in China, only 70% of the population has access to the internet, compared to 43% in India (2020 figures) (The World Bank, 2022a). The coronavirus epidemic has also led to a huge upsurge in e-commerce, with Southeast Asia expected to reach approximately 120 billion U.S. dollars by 2021 (Ganbold, 2021).

Given the critical contribution of infrastructure development to the economic development of Asian countries, it is not surprising that conditions for access to electricity are also improving. According to 2020 data, 99% of the population in India has regular access to electricity, compared to 96.9% in Indonesia and 100% in China (The World

Bank, 2022b). As energy demand in the Southeast Asian region increases rapidly due to economic development, the achievements of the fourth industrial revolution combined with sustainable development criteria can help catch up with less developed regions while reducing the use of non-renewable energy sources.

4. The emerging states of the new world order

4.1. People's Republic of China

For nearly 18 centuries, until the 1820s, China produced 25-33 percent of the world's GDP. Subsequently, the balance of power for China changed completely, and it was not until the last third of the 20th century that China began to make progress. This period, in turn, already created a completely different economic environment for China, with changed international relations. One of the greatest advantages of the Chinese socio-economic system is that it builds to a great extent on the country's millennia-old traditions, but at the same time it is able to innovate and be quite flexible (Blahó & Kutasi, 2010, p. 159). Thanks to this flexibility, China's current economic success is based on "socialism with Chinese characteristics" In the more than thirty years since the announcement of the reform and opening-up policy in 1978, the economy of the People's Republic of China has become the second largest economy in the world after the United States (US) thanks to its reforms. The goal of the reform and opening-up policy was to gradually dismantle the over-centralized, planned economy system of the Maoist era. At the same time, the country began to open up to foreign capital, which only happened gradually through the special economic zones (SEZs). The SEZs were able to form independent economic rules that were different from the rest of the country. Their main objective was to create a suitable economic environment for capital inflows from abroad, i.e. they served as a liberal economic environment. Thus, by the turn of the millennium, China had become the fastest growing economy in the world, with an average growth rate of 9.3 percent (Mészáros, 2005, p. 4). Even after that, it did not decline significantly; until 2011, GDP growth averaged over 9 percent per year. Since

2013, sustainable and balanced economic growth has been the primary goal of the Chinese Communist Party, which is aiming for a more subdued pace of economic development, focusing on transforming the former export-oriented economic structure and increasing domestic demand (Embassy of Hungary in Beijing, 2016). In the fall of 2013, China provided further evidence of its increasing global role when it launched the Belt and Road Initiative project, with a goal as ambitious as reviving the traditions of the ancient Silk Road. Beijing has pledged to build and develop transportation networks in the footsteps of the former caravan routes between Europe and Asia and, of course, to promote the regions concerned economically. Basically, this is a long-term international development program managed (financed) by China, which also meets Beijing's geostrategic goals by connecting remote regions with major trade routes. The BRI is seen by the West as a "continental consolidation" that could challenge the Atlantic era dominated by the naval powers, but at the same time the initiative is seen by the Chinese as a "new vision for China's rebirth". (Horváth, 2022, pp. 91-92). The BRI includes two megaprojects: one is the Silk Road Economic Belt, the other is the 21st Century Maritime Silk Road. The former connects China by land to Central Asia, the Middle East, and Europe, while the latter links the major maritime trade routes of Africa, Europe, and Oceania, as well as South and Southeast Asia. The two projects are inextricably linked, and the goal is their parallel implementation. Although the importance of high-speed railroads and highways is undisputed, maritime transport still plays the main role in terms of traffic volume. Therefore, in a global sense, the Maritime Silk Road has an even greater importance than the "economic belt" spanning continents (Klemensits, 2018, pp. 109-112). After GDP growth of 7.4 percent in 2014 and 6.9 percent in 2015, the Chinese leadership has already set a growth rate of 6-7 percent for the coming years, which has entered the public consciousness as the so-called "new normal" and is intended to emphasize mainly the qualitative indicators of economic growth (falling inflation, tightening envi-

ronmental standards, slowing growth in demand for raw materials and energy, etc.) (Embassy of Hungary in Beijing, 2016). And in 2015, the “Made in China 2025” program was announced, modeled on Germany’s “Industrie 4.0,” which aims to strengthen the global competitiveness of Chinese companies and gradually reduce government involvement by making greater use of innovative technologies. At the same time, China is working to build a knowledge-based society that relies on a creative workforce (ibid.). Current Chinese President Xi Jinping recently introduced a new concept for the Chinese economy that is expected to define Chinese economic growth in the future, namely the “double-loop economic system”. The internal cycle would cover internal production, consumption, and innovation, while the external cycle would maintain China’s role in the global economy, as China does not want to be included at all (Tang, 2020); it is enough to mention the fact that China became the largest trading partner of the European Union (EU) in 2020 (Zoltai, 2021). China is one of the countries that managed to cope with the coronavirus epidemic so successfully that it was also able to achieve economic growth in 2020 (+2.3 percent), while the world average was -3.5 percent. In fact, the Chinese economy performed quite well, becoming the world’s second largest economy in 2020 with a GDP of \$14,723 billion (World Bank, 2021a). According to the latest data, China’s GDP growth was 4.8% in the first quarter of 2022. The relatively rapid growth exceeded analysts’ expectations, which had originally projected only 4.4. In addition to the better-than-expected figures, it is worth highlighting that the growth rate accelerated in the last quarter of 2021 (2021 Q4: 4.4%) (Bloomberg, 2022).

4.2. India

India is often referred to as the other emerging giant of Asia after China, not only because its human and natural resources make it capable of similarly rapid economic development as China, but also because its economic policies since the 1990s provide a strong background for it. In the decades following the attainment of independence (1947), India developed a state-directed, import-substituting

planned economy with an emphasis on heavy industry, typical of communist-socialist states. In the second half of the 1970s, the high import tariffs and quotas began to be reduced, which led to an upswing in the economy in the 1980s. In 1990-1991, however, there was a liquidity crisis triggered by the collapse of the Soviet Union, with which India had close economic ties. Prime Minister Narasimha Rao, who took office in June 1991, turned to the IMF for a loan and initiated a program of full economic liberalization, subject to conditions. After overcoming the crisis, the Indian economy recovered rapidly and picked up even faster, making the list of ten fastest-growing economies since 1980, with annual GDP growth of at least 3% and in some years over 8% (World Bank, 2021c). The service sector has become an increasingly important part and driving force of the economy since the 2000s (Ghate, 2012).

As early as the early 2000s, predictions were made that India would become a superpower (Thirlwell, 2004). Since then, India has been shaping its foreign policy in line with this new position. The country conveys the image of a benevolent middle-income state rather than a country that could rise to become a superpower. This is precisely the purpose of its public diplomacy: to allay fears about the country’s economic rise and thus maintain without interruption the broad system of economic, strategic, and cultural foreign relations it needs for its continued development (Mazumdar, 2020). In addition to bilateral relations, India also places great emphasis on multilateral engagements. In 2021, it became a non-permanent member of the United Nations Security Council (UN) and also plays an active role in various organizations UN. In addition, in 2006, India became a founding member of BRIC (BRICS since 2010, with South Africa), an association of emerging economies, along with Brazil, Russia and China.

Analysts of the Indian economy usually point out the factors that may hinder India’s development in the coming decades, or that India may even lag behind the emerging economies of the BRICS. The lag is most evident when looking at social conditions. Although India, which is steadily reducing the

number of poor and hungry (Alkire & Seth, 2015), has made great strides in recent decades-between 1990 and 2010, the rate of severe poverty was cut in half-it still lags far behind Russia, China, or even Brazil. The most recent World Bank data on India are from 2011 and show 22.5 percent of the population living on less than \$1.90, compared with 0.1 percent in Russia, 7.9 percent in China in the same year (though the rate fell to 0.5 percent by 2016), and 4.7 percent in Brazil (World Bank, 2021d). In addition to and related to poverty, there is a lag in infrastructure compared to other emerging economies, and infrastructure development is occurring at a relatively slow pace (Centre for Economics and Business Research, 2020).

Several analysts believe that India will be able to make up for its weaknesses and that its pace of development will not continue to decline over the next thirty years. In its 2017 report, PwC forecasts an average annual growth rate of 4.9 percent for the Indian economy between 2016 and 2050, which would make India the world's second largest economy after China by 2050, ahead of the United States in terms of purchasing power parity (Hawksworth-Clarry & Audino, 2017). While India has achieved 9 percent growth in the current fiscal year, New Delhi expects GDP growth of 9 percent in the next fiscal year as well, which was confirmed by the IMF's forecast released in January 2022. This is indeed an outstanding achievement at the beginning of the post-19th century recovery, especially given the 7.3 percent decline in FY 2020-21 (Bery, 2022).

4.3. The Republic of Korea

South Korea (the Republic of Korea) has achieved remarkable success in combining rapid economic growth with significant poverty reduction. In many respects, South Korea's development path and institutional solutions have followed the Japanese developmental state model. In the 1950s, South Korea was one of the poorest countries in the world as a result of Japanese colonial rule and the Korean War. Economic recovery began in the 1960s, when the 1962 Five-Year Plan initiated the industrialization of the country and laid the foundations for economic growth (Heo et al. 2008, p. 2). The second

Five-Year Plan of 1967 was already based on export incentives and import substitution (ibid., p. 5). Since the 1970s, the South Korean economy has achieved spectacular and dynamic economic growth thanks to the export-oriented industrial and service sectors. From the 1980s to the mid-1990s, economic growth was 8-12% per year. The state also played an important role in economic success, as did chaebols similar to Japan's keiretsu system.

In the mid-1990s, the South Korean economy began to show signs of problems, as evidenced by the fact that foreign loans accounted for 24 percent of GDP in June 1997 (Heo et al. 2008, p. 16). However, even in the years between the regional crisis of 1998 and the global economic crisis of 2008, the country's economic output grew by 4-6 percent per year. The country recovered relatively quickly from the latter, but economic growth thereafter was only between 2 and 4 percent (Neszmélyi, 2020, p. 277). Since 2008, South Korea has signed a number of free trade agreements with Asian, American, and European countries and other partners, including the European Union. The EU-South Korea Free Trade Agreement (KOREU) entered into force on July 1, 2011. For the EU, it was the first FTA with a partner country in Asia, and KOREU ushered in a new era in EU-South Korea trade relations (Neszmélyi 2020, p. 276.). Since its entry into force, import tariffs have been eliminated for almost all products. South Korea is now one of the largest economies in the world, ranking 9th in the world in 2020 and 4th in Asia in terms of nominal GDP (\$1,540 billion) (Kim, 2020). Effective measures to contain the spread of the Covid 19 epidemic have limited the estimated decline in GDP in 2020 to just over 1%, the smallest decline among OECD countries. The economic recovery has been driven by growth in consumption, boosted by large government transfers to households, and an upswing in exports from South Korea, for which the semiconductor industry is responsible. In addition, extensive plans for digital and green investment have supported the economic revival. (South Korea's economy expanded at the fastest pace in 11 years at 4% for the full-year 2021) Recently, Seoul

unveiled the 160 trillion won (\$133.1 billion) “Korean New Deal” as the Moon government’s economic stimulus programme. COVID-19 reconstruction policy in July 2020. The Korean New Deal consists of three pillars (digital, green, and social), and 44.8 trillion won (\$40 billion) has been allocated for the “Digital New Deal,” which includes the integration of data, networks (5G), networks, and AI (DNA) into the Korean economy and to fund the digitization of public infrastructure over the next five years. With the right opportunities, South Korea has every chance of becoming a true “middle power of the fourth industrial revolution” as the government aspires (Kim, 2021).

4.4. Southeast Asia

4.4.1. ASEAN

If the region is considered as a single entity, it is the fifth largest economy in the world, accounting for 3.4 percent of global GDP. In the region with a population of 655 million, the expansion of the middle class has been spectacular: while it comprised only 190 million people in 2012, forecasts suggest that this number could reach 350 million by 2022 (Kuusinen - Pierzynowski & Yuson, 2019, p. 4). Of course, Southeast Asia is a heterogeneous region, with the Tiger Cub Economies (Indonesia, Malaysia, the Philippines, Thailand, and Vietnam) playing a key role. Its development was also favored by its strategic location, as the countries of Southeast Asia also actively participated in maritime trade thanks to the Strait of Malacca, which provided the right starting point for development after gaining independence. The establishment of the Association of Southeast Asian Nations (ASEAN) in 1967 was a major step forward, as maintaining regional peace, promoting economic growth and social development were among the organization’s main objectives. ASEAN also contributed to the establishment of a framework for political, security, and economic cooperation in the Asia-Pacific region, with free trade agreements with major powers playing an important role (Mahbubani & Sng, 2017, pp. 74-75). The ASEAN Economic Community was established in 2015 to create a common market among member states. The average

GDP growth in member countries ranged from 3.8 to 7 percent between 1989 and 2009, which has continued to strengthen in recent years. According to the 2018 McKinsey report, 8 ASEAN member states were among the best performing economies in the world (CNA, 2018). In 2019, the ASEAN Secretariat predicted that ASEAN could be the world’s fourth largest economy by 2030. The progress of ASEAN integration also increases the combined economic power of its members, which in some respects contributes to the emergence of an economic bloc similar to the European Union. As a result, while some countries will play a greater role in rebalancing global economic power, overall the region as a whole is expected to play an increasingly important role in the long term.

Southeast Asia’s role in the global economy is well illustrated by the fact that the region is a global center for manufacturing. This sector accounts for 20 percent of ASEAN’s GDP and is not only one of the most important markets, but also has the third largest labor force in the world (Kuusinen-Pierzynowski & Yuson, 2019, p. 12). In addition to investment, increased innovation is also an important component of growth.

However, Southeast Asia’s development is hampered by a lagging infrastructural environment that requires significant investment. The Asian Development Bank projects that at least \$2.8 trillion will need to be invested in infrastructure in the region between 2016 and 2030, which already requires the involvement of external sources (Standard Chartered, 2019).

It is no coincidence that Southeast Asian countries are eager to participate in China’s Belt and Road Program (of particular importance to the region is the new mega-project of the 21st Century Maritime Silk Road), which, in addition to investment, aims to develop the economies of the countries concerned while strengthening connectivity throughout Asia (Zoltai-Klemensits, 2020, p. 7). Large-scale infrastructure development projects with China’s active participation can further strengthen economic cooperation between Southeast Asia and the outermost regions and

demonstrate that closer ties within the supercontinent will further improve Southeast Asia's economic position internationally.

4.4.2. Singapore

The mini-state, with a population of just over 5.6 million and an area of 721.5 square kilometres, has developed from a former Third World colony to one of the most developed countries in 50 years under the leadership of former Prime Minister Lee Kuan Yew. GDP per capita based on purchasing power parity reached USD 101649 in 2019, making Singapore one of the richest countries in the world. Between 1980 and 2016, Singapore's economy grew 25-fold, from USD 12 billion to USD 297 billion. In 2020, the state was the most competitive country in the World Competitiveness Rankings, but has consistently ranked among the world's top three financial centres for years and had the third-highest GDP per capita in 2014, according to the International Monetary Fund. In 2021, the country's GDP grew by 6%, but is forecast to grow by just 3.2% in 2022 (IMF, 2021).

The Singapore government plans to expand manufacturing by 50% by 2030, which will also create opportunities for foreign investors. The DBS report forecasts that Singapore could be the world's leading country in terms of GDP per capita by 2030, with GDP growth of 3-3.5% per year. The report highlights Singapore's strategic importance in global trade, its role as a mediator between China and the U.S., the introduction of new technologies and business models, and the growth of exports to ASEAN countries. Singapore's Green Plan 2030, released in 2021, advocates for sustainable development by improving urban living conditions, developing new infrastructure, and reducing emissions through the use of innovative new technologies (Tan, 2021).

In terms of foreign policy, despite its close economic cooperation with China, the city-state is keen to maintain a U.S. military presence in the future to preserve security, peace and stability, which will force it to strike a delicate balance between the major powers and is expected to retain its strategic importance in the future.

4.4.3. Vietnam

According to PwC's 2017 forecast (Hawksworth-Clarry-Audino, 2017), Vietnam could be consistently the fastest growing large economy in the world by 2050, with an annual GDP growth of approximately 5.3 percent, while ranking 20th globally in terms of purchasing power parity (Hawksworth-Chan, 2015). At present, Vietnam's economy, which is a socialist-oriented market economy following the Chinese model, is the 23rd largest in the world in terms of purchasing power parity. The development of the country that joined ASEAN in 1995 has been remarkable for the past 30 years. Economic and political reforms launched in 1986 (Doi Moi) triggered rapid economic growth that turned one of the world's poorest nations into a lower middle-income country. Between 2002 and 2018, its GDP per capita increased 2.7-fold exceeding US\$2,700 in 2019, while more than 45 million people were lifted out of poverty. During both 2018 and 2019, the GDP grew by 7 percent, while thanks to the export-oriented processing industry and domestic consumption, the economy showed significant resilience as a result of which a positive growth of 2.9 percent was reached in 2020 during the coronavirus epidemic (Lee, 2021). Year-on-year, Vietnam's GDP grew by 5.03% in the first quarter of 2022. In March 2022, the Vietnam Bureau of Statistics had forecast growth of 6-6.5%, but the World Bank's April report instead predicted 5.3%, roughly in line with neighbouring countries (Onishi, 2022).

5. Conclusion

At each stage of the Industrial Revolution, the countries that played a leading role in the process soon gained considerable influence over the world economy and world politics, so that the connection between the Industrial Revolution and the transformation of the world order is beyond question. In the fourth industrial revolution, which focuses on the technological development of digital systems, the major Asian powers have assumed a dominant role. In recent years, significant progress has been made in the areas of education and infrastructure development, which has created the conditions for exploiting the achievements of the fourth industrial revolu-

tion. At the same time, the countries in question are playing an increasingly important role in the global economy due to their economic performance, which gives them greater geopolitical weight in world politics. The development of China, India, South Korea, and ASEAN has also led to the emergence of a new multipolar world order in which the role of the United States and Western Europe is diminishing. Although the Asian region is a very heterogeneous area, its leading role in the fourth industrial revolution could lead to further progress by these countries and thus contribute to strengthening their position in the new world order. ♦

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Summary

Trong lịch sử, chúng ta đã trải qua ba cuộc cách mạng công nghiệp: cuộc cách mạng công nghiệp đầu tiên diễn ra từ năm 1760 đến năm 1830. Đó là sự chuyển đổi sang các quy trình sản xuất mới khởi đầu từ Vương quốc Anh, để đến giữa thế kỷ 18, nước Anh đã trở thành quốc gia thương mại hàng đầu thế giới, kiểm soát thương mại toàn cầu thông qua thuộc địa của họ, và sau đó trở thành bá chủ trong trật tự thế giới. Cuộc cách mạng công nghiệp lần thứ hai bắt đầu từ năm 1870 đến Thế chiến thứ nhất. Đó là cuộc cách mạng công nghệ, vẫn xuất phát từ Anh, để quốc gia này có thể củng cố quyền lực bá chủ của mình. Cuộc cách mạng công nghiệp lần thứ ba, còn được gọi là cuộc cách mạng kỹ thuật số, diễn ra từ năm 1947 đến đầu thế kỷ XXI. Cuộc cách mạng kỹ thuật số bắt đầu ở Hoa Kỳ và cuộc cách mạng mới đã biến Hoa Kỳ trở thành quốc gia dẫn đầu trong thương mại toàn cầu. Hoa Kỳ trở thành một trong những quốc gia quyền lực nhất trong trật tự thế giới và trở thành bá chủ mới. Vì vậy, như chúng ta có thể thấy từ ba cuộc cách mạng công nghiệp đầu tiên, bất cứ ai lãnh đạo cuộc cách mạng sẽ trở thành cường quốc mới trong trật tự thế giới mới. Cuộc cách mạng công nghiệp lần thứ tư đã bắt đầu vào thế kỷ 21, với các quốc gia Châu Á như Trung Quốc, Hàn Quốc, Singapore... dẫn đầu những phát triển công nghệ mới. Châu Á sẽ trở thành cường quốc mới của thế giới thông qua cuộc Cách mạng Công nghiệp lần thứ tư? Bài báo sẽ trả lời câu hỏi này bằng cách xem xét mối quan hệ giữa các cuộc cách mạng công nghiệp và trật tự thế giới.