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INDONESIA
FOR GLOBAL JUSTICE

THE COVID19 & DIGITALIZATION OF LIFE

DIGITALIZATION OF LIFE REPORT

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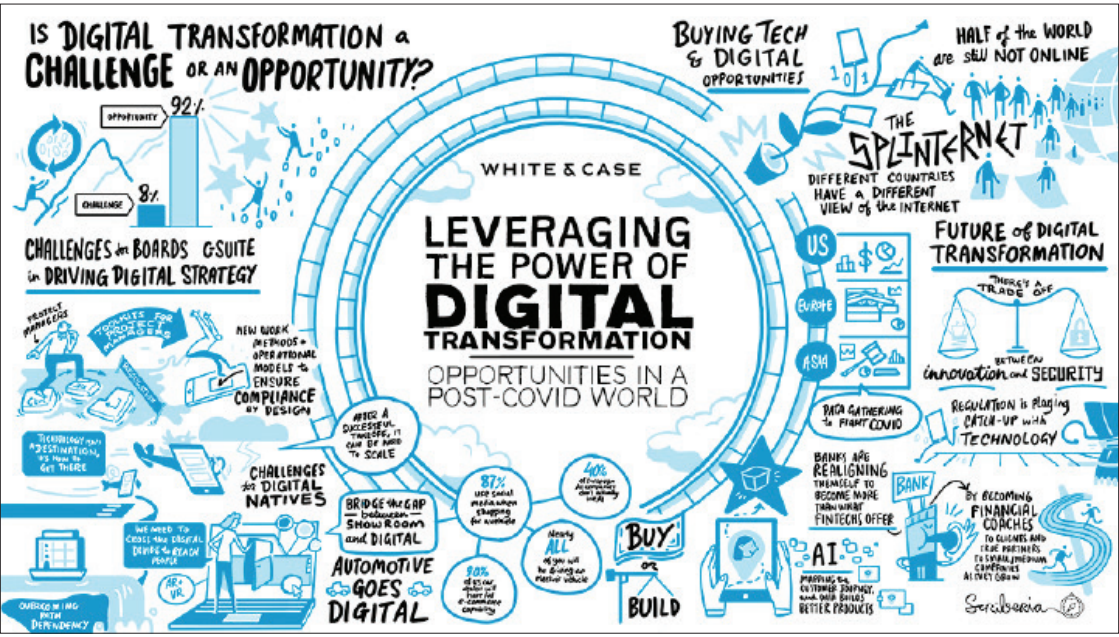


source : https://www.whitecase.com/

BACKGROUND

INTRO

Covid-19 has become a catalyst that accelerates the process of global change. This condition will eventually be used by businesses to accelerate their transformation. Businesses with digital services will have a broader space in economic activity and various service needs. New digital-based business models will also grow, even faster than expected. Digital products will increase with innovations that could not have been previously imagined. Several digital applications during the lockdown period have shown such trends. The acceleration of digitalization in almost all fields shows the shape of the

structure of new industrial and social relations in society. Social interaction is rearranged in new forms with digitizatalization. But, the desire to make the transition to digitalization is not accompanied by efforts to protect labor rights and public data and guarantee democratic governance. Governments are still stuttering in facing future needs. It will again open up a new monopoly space for corporations.

Covid-19 also took place at the time when capitalism was entering a crisis, where an open trade war is taking place between the United States and China. The development of the Chinese economy has shifted the poles of the world and enforced open trade wars, violating rules that have been agreed upon for decades. The Covid-19 outbreak then tested the endurance of each country as they sought to protect their economy through long periods of lockdowns. As the plague of Covid recedes, the new 'poles' of the world become more apparent.

The pace of digital and telecommunication developments and its impact is fast, extensive, and profound. Continuing with the pre-pandemic situation, the battle for technology and digital domination between the US and China is an important factor in the global digital battle. Digital wars are likely to determine the course of the 'geo strategic games' and global economic struggles. Various regulations are needed and must be able to adapt immediately and anticipate this development.

The World Economic Forum, in the 16th Global Risk report in 2021, mentioned various key issues that will disrupt global economic development in the next 2 years, including; Disease infections, livelihood crises, extreme weather, cybersecurity failures (Cybersecurity Failure/19%) and digital inequality.

What happens in the Global South? In developing countries, digitalization is offering new hope for increasing the economic potential as well as solutions

source : https://www.mckinsey.com/

for the provision of various service facilities of these developing countries. Education, health, social and other services are becoming more likely to be available in a relatively shorter time. For billions of people and micro, small and medium enterprises, it is an opportunity to open markets and capacities

for production. The provision of telecommunications and digital infrastructure is an important requirement for fulfilling these expectations. The role of digitalization is not limited to economic issues, but is increasingly showing its important role in the model of global change that will occur.

The digitalization process forces several alterations in the structure of the global economy, starting from shifting labor needs from the wave of automation, the development of e-commerce systems, e-services to the acceleration of financial technology. All of this has a significant impact on inequality between regions that have good access to digital infrastructure and areas that have difficulties to access digital services.

Clearly digitalization is likely to force dramatic changes and change the "rules of the game". President Trump had made demands that international institutions make changes in global rules since rules mase since the end of the Second World War do not comply with current needs and changes in technology or interstate relations.

These changes are also reflected in global supply chain activities. Some experts mentioned that supply chain activities are more regional than global. The reasons for shorter supply chains are due to the significant use of technology such as advanced robotics and artificial intelligence. Many experts also say that the strengthening of regionalization is the basis for the trend that the era of globalization is coming to an end. The shift in the direction of globalization has become a struggle over the source of economic growth between northern and southern countries, especially Asia.

In order to win the battle, the new global standard order will be reset by the current power holders. Once again, the global south will become the victim of the new capitalist agenda that controls the new global economic model which is based to a large extent on the digital economy.

PRIORITY ISSUES
CHAPTER 1

DIGITAL WAR AND COLONIALISM

"With the accumulation of data we provided, we have given great power to digital platform owners. These data are often commercialized without our consent. These data are highly important for the development of artificial intelligence "

"Countries in the world must ultimately determine their own path, otherwise they will inevitably fall into one of the two empires, China or the US."

- Richard Hill

Covid-19 has become a catalyst that has accelerated digital capitalism. Social and material fulfilment is taking place in a situation of technological competition between China and the USA as two global economic powers. China was the first country to face the Covid-19 outbreak and continues to control its spread in its region. China is showing economic recovery and production faster than other developed countries. At least this provides more opportunities for China to dominate and influence global digital economic control.

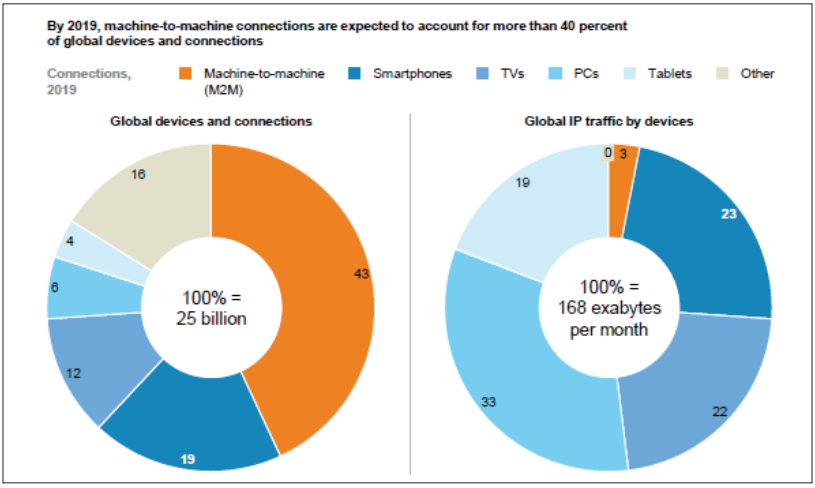
The development of digital technology has been very rapid and has penetrated into almost all aspects of human life. There is almost no part of human life that does not get a digital touch. As the destructive extraction of natural resources, the extraction of human data is also taking place on a large scale. The transition

process in human roles and activities is also taking place. Paradigms are being transformed and looking for new definitions.

The cold war period became a narrative that had emerged between the US and the USSR and this 'cold' conflict seems to be repeating itself in the struggle for dominance between the US and China in the era of digital development. E-commerce activities and various Chinese applications have rivalled major application companies in the world. Names like Baidu (B), Alibaba (A), Tencent (T), and Xiaomi (X) - (BATX) have been able to compete strictly with Google (G), Amazon (A), Facebook (F), and Apple (A) - (GAFA). Both of them are also trying to build a digital strategic infrastructure to make the world depend on them. Competition does not only occur in software alone, but also hardware such as telecommunications and digital networks.

Free internet that originally emerged in the US during the Clinton era has developed into an idea in many countries. Meanwhile, behind the free internet access, the digital system that works unconsciously has forced users to hand over existing data to everyone who uses the access. Generally, we do not realize that the data they take is immensely large, and not only once these data are the ones which are supposed to be handed over to the other parties. The accumulation of data that we have provided has given great power to owners of digital platforms such as Facebook, Google, etc. These data are often commercialized without our consent. These data, are highly important for the development of artificial intelligence.

The People's Republic of China and the United States of America are competing fiercely in the data extraction process, especially with the Internet, which has made everything in the world interconnected such as irrigation systems, agricultural systems, health issues, and so on to personal life. The United States and the PRC also conduct negative campaigns against each other to influence the technology product market, for example; using Huawei will help China,



source : CISCO

but on the other hand, we know that using Google means indirectly helping the United States. During Trump's time, China was under pressure from the US openly and in the Biden era, there was no change in principle except for a different pressure policy. The contestation of the two and their influence with other countries globally will create the future of technological mastery.

In this war of domination, the United States still offers the jargon of freedom and democracy, while for China we do not exactly know what they will offer, as China has no history of expansion in the history of colonialism, on the contrary, China has always pushed for self-sufficiency, in contrast to the US and Europe, which is always interdependent with global supply networks. The countries of the world must ultimately determine their own path, otherwise, they will inevitably fall into one of the two empires, either the People's Republic of China or the US.
India initially drew from technological developments from the UK, but lately,

the UK has been disturbed by India's ability to produce textile products and dominate the market within the UK itself, in the digital context it is almost the same, digital technology is developing, but even though there is an opportunity for developing countries to compete, there will still be an attempt to inhibit its development.

At the beginning of the industrial revolution, machines became a force of production, but behind those machines, human intelligence and reliability were still needed in order to operate them. However, machines nowadays have had their intelligence, so they can make their own decisions, this completely changes the pattern of the industry and the decisions within it. Anyone who has control over technology will eventually be the dominant power in the world.

> **"In the context of AI-based technologies e-commerce takes up the space of human intelligence and labors are forced to only follow machine recommendations, their creativity is systematically inhibited and taken over by those machines."**
>
> **- Parminder Jet Sigh**

In the context of e-commerce and economic facilities in general, AI-based technology has taken up the space of human intelligence. The workers are forced to only follow the recommendations of the machine, their creativity is systematically stifled and taken over by the machine. The database of artificial intelligence, on the other hand, is controlled by a handful of groups and is located in dominant countries. In the end, we must have the ability to choose the use of hardware and software that we will use, the problem is that developing countries have limited choices due to infrastructure dependence with dominant countries.

In the digital space, each corporation will try to integrate by developing its own hardware and software to avoid dependence on other parties in the near future; Google, Facebook, and Apple are trying to create their own microchips. The Cloud Computing technology, although it offers end-to-end services, cannot avoid data control by cloud owners and owners have a dominant position in the data business value chain and other related businesses.

Developing countries must devise their own strategies in order to take advantage of the new cold war circumstances. In countries in the Middle East, the industry of technology does not only sell software and hardware, but also social engineers. This is terrifying since there is a mass discipline that is governed entirely by machines. Data regulation is a fundamental matter, the government needs to regulate data ownership, when data is taken and manipulated, the government and the people will experience huge losses, therefore data recording is still needed.

A new phenomenon as shown in the case of Huawei, whose 98% stocks are owned by workers, a model that is difficult to find in the US, still seems to have weaknesses as a solution. Richard Hill criticized that dominant ownership by workers prevented the company from entering the stock market and dominant ownership by the public could not be achieved. As a result, it is difficult for companies like this be encouraged to be more transparent, while under conditions in China it is difficult to ascertain whether the shareholder union organization is controlled by the government or not? Moreover, another question arises whether the company will remain the same when expanding to other countries or will it remain controlled by its parent company in China? While the PRC itself has developed into state capitalism, democracy is not working, and everything is controlled by its government and regime.

Hi-Tech Industry is becoming a cartel industry that tries to maintain its dominance regarding data control. Clearly, digital dominance needs to be controlled by

both government and the people, and the impacts need to be monitored since both must be able to respond and force the AI-based digital industry to take full responsibility for controlling negative impacts. In Europe there are emerging community movements that collectively finance service industries such as the media, so as to encourage competition for communal ownership with purely private ownership. Such initiative can at least limit the control of data by the private sector. Meanwhile, in the Global south, in India, all data owned by the technology industry can legally be accessed by the government for the management of public services.

The state can protect this through data management policies, for example, technology investment is limited to only building its database in the country and cannot be accessed outside. Things are not much different in Indonesia, even with data protection, especially laws to protect personal data, are still weak. Data protection in many developing countries is low and lagging behind Europe. It mostly deals with the process of making regulations and adapting to other countries.

Regulations related to digitization, such as by the WTO, are still not considered easy seeing the dynamics of development are still ongoing and relatively complex. The condition is that there is no certainty regarding what must be regulated and how the ability of member countries can implement it. The WTO will regulate it when the pattern is clearly visible. It is unlikely that we will reach an agreement on this matter in the short term, however, we must continue to take the initiative to provide inputs, especially regarding data access, payment systems, interconnection, etc. Europe is pushing for integrated data governance with data protection schemes, but the extent of its effectiveness is yet to be seen given the complexity of data-related issues. Even in these evolving conditions, south-south cooperation must continue to be pursued to encourage global governance related to data and the digital industry. The south-south coalition is expected to be able to drive improvements at the global level.

PRIORITY ISSUES
CHAPTER 2

COVID AND THE DIGITAL TRANSFORMATION OF EDUCATION

"Education is not a transaction between producers and consumers, likewise a commercial service, it is a dialectical process, the transfer of knowledge and values"

- Prof. Jane Kasley, Auckland University, NZ

As the Covid19 disease outbreak spread, the number of countries that closed schools and universities increased rapidly. The transition to digital education is certainly disruptive as it wasn't planned for in the timeline the coronavirus dictated, but it influenced how educators and educational institutions will prepare in the future. **Besides issues related to curriculum and teaching systems, technically it requires digital expertise in making modules and the availability of infrastructures such as networks and communication systems or applicators.**

The weak digital infrastructure, including telecommunications/internet, generally becomes a prominent problem in developing countries, especially countries in the south. Digital capability to do many things and be an alternative service provider is the hope of many countries in pursuing various social

services that have been developing slowly and expensively. This situation on the other hand is an opportunity for major companies to enter the world of education, in addition to those large global educational institutions which have massive financial supports and digital capabilities.

"Digitalization of education must be controlled precisely, thereforeit doesn't enter into learningification, which makes algorithms an absolute determinant in the educational process, subjective space and unique interactions of educators and students in education must be maintained in an absolute manner"

Gurumurthy, IT Director, Photo Change, India

Rapid changes in digitalization need to emerge in all sectors and this requires human resources and favours those who really have strong skills in this aspect. **The inclusion of the global companies' role and large educational institutions indicates that the very** purpose of education will shift to meet the interests of investment and industry in the future. The purposes of education has also been towards building of the nation-state, and is generally adapted to the needs and character of states.

A country's digital infrastructure unpreparedness makes it dependent on developed countries or technology producers. As in Indonesia, unequal infrastructure between regions also creates problems and inequality in digital-based education services. This shows that developing countries will continue to face dependence and inequality in the provision of digital-based education services. Moreover, the mastery of infrastructure and digital-based educational services has affected the data collection process. Both are related to personal

source : https://images-tm.tempo.co/

data and behaviour of learning as well as scientific activities, including data on knowledge or scientific work.

A. Digitalizing education: Between Inequality and Future Hope

A school in the interior of Papua continues to implement the education process even though everything is lacking. Simple school buildings with very limited educational media have become the main facilities of elementary schools. The insufficient teaching staff is the main engine the school can continue to run. In a situation of complete deprivation, between the silence of the trees and the hills, the school continues to pursue the achievement of the curriculum that has been set even though it faces immense difficulties. As a result, the level of success is adjusted with a high level of tolerance.

A program was then piloted in which each student in a class was given a tab that already contained programs and applications. The program had been adapted to the material and learning needs, including language styles and images that are not too far from their environment. As a result, schools become more alive. Education becomes more joyful and colourful. Reading lessons can be done while singing or looking at coloured pictures that are still or moving. Sometimes lessons are done outside the classroom, having a teacher who can provide fun and in-depth learning process.

Every child can shine and school time can be something that they have been waiting for, so much different from where previously experienced, the effort to invite them to school was a certain success when such a process was implemented in schools in rural areas. Tabs are used interchangeably in other classes, and not all the time. Every day tabs are collected for charging and because there is no internet connection, application programs must be delivered manually. This program raises hopes for a much brighter future for rural children in understanding the world, knowledge, and their existence as human beings.

The story above illustrates how digital technology can be an extraordinary supporter of education. Various lack of facilities can be replaced and multiply the functions of teachers without getting rid of them. The problem then is how to provide these facilities in a massive way. How much resources and ability is needed to make software applications that are able to support and are in accordance with the process and educational goals that can be produced? This eventually returned to being a classic problem where there is no support of the wider community and the state, so hopes would have vanished.

Educational programs with the support of digital technology are being piloted as an alternative in supporting the educational process and facing the problem of the low level of educational facilities, especially in developing countries and in disadvantaged rural areas. The lack of facilities and funding needed for this is a common and classic problem in developing countries. The process of looking for alternative models that can be implemented widely which is an ongoing process in many places that got accelerated due to the Covid19 pandemic. All of a sudden schools were closed and online mechanisms were used in an effort to achieve the curriculum targets. Acceleration without preparation has brought ineffective impacts and tends to sacrifice the students.

B. Acceleration of Education Digitization and Potential for Corporate Domination

The flow of digitalization in the world of education, which is planned to run in stages, faces the acceleration of the digital adaptation process during the Covid19 pandemic. The majority of governments in almost all countries closed educational facilities simultaneously nationally, without an adequate assessment process, and begin to enforce online teaching and learning processes. The transition to online schools in the Covid19 pandemic situation only moves the locus of the online education process with the same curriculum. Urban areas in developing countries do not seem to experience many adjustment problems, although it is still far from a good process. However,

in remote areas, which are relatively low in risk for the transmission of the Covid19 virus, infrastructure issues and inadequate access to technology make online schools face major obstacles and problems.

There are at least two problems related to inequality, namely: Inequality of communication infrastructure (ICT), where digital media cannot be accessed due to the absence of an adequate internet network; Inequality in access to devices (device inequality), individual barriers caused by students and their families who do not have access to digital devices (mobile phones, laptops, etc.) that can be employed to attend online schools. In the case of Indonesia, as a result, the gap between education in rural and urban areas has become wider due to the Covid19 pandemic.

The sudden change in national policy has increased the demand for digital infrastructures. The need for internet network facilities is also increasing in the midst of declining quality due to high usage. The need for digital equipment such as laptops, mobile phones, and others shows the same increase. In addition to hardware facilities, the need for software facilities has also increased. The need for interactive online meeting facilities is increasing along with the support services for subject matter in digital form. This increasing need is an opportunity for capitalization in education services.

The Indonesian government since the pandemic has issued an online skills training program which is an acceleration of a previously designed program. This paid application which is subsidized by the government for the community has caused controversy regarding the issue of transparency and oligarchy. This application business is one of the emerging capitalization models for educational services in many countries. These companies facilitate talented teachers to create digital materials in the form of learning videos, animations, or various other media. The teachers are placed as talents and content creators whose products are then sold online through subscription access from students.

The educational service platform has a wide space to develop in the future and has the opportunity to become an alternative supporter in the education system. In line with the strengthening trend of investment and commercialization of education across countries, the development of digital technology also provides greater space for education business players at the global level who have large capital power, more advanced knowledge sources and qualified technical support. Online-based educational facilities can be done without having to build larger infrastructure facilities,therefore they are easier to penetrate in developing countries. This condition gives them greater space to enter developing countries, especially when it is associated with the opening of the investment faucet through many Free Trade Agreements.

This situation creates open competition between large educational investors and local educational institutions with low facilities and scientific bases. Meanwhile, what remains is unique local material and even then, it is still possible to adapt it more easily. This development will ultimately encourage the opening of the process of globalization in education which is dominated by big global businessmen. If it is not controlled, the contrast of this situation is that people who do not have sufficient funds will be increasingly marginalized and their access to knowledge limited. Protection of the educational process or rather on educational institutions in developing countries will rely heavily on support from the government.

C. Education and Inclusive Development

The industrial revolution 4.0 demands a process of adapting education to be able to leapfrog in the global development trajectory, where the north and south countries share experiences, knowledge, and access to education to narrow the development gap. It is also hoped that this will happen in the community with the formation of communal initiatives and solidarity in various

learning communities and become a cushion for the rapid adaptation of the educational process. Education in the digitalization era is expected to be a means for reforming society, by eliminating barriers that create inequality and create an inclusive society that has equal access to various vital resources. This in turn is expected to become the foundation for the passage of the process of democratization under public control.

One of the important goals of education is to encourage the formation of a process of awareness of the realities that are being faced and to enable each individual, family, and community to adapt and take advantage of these alterations. Unfortunately, equitable access to education is still a major problem in many developing countries, such as Indonesia, India, and other developing countries in the Asian region. This inequality is manifested in the lack of opportunities to access good quality education in terms of infrastructure, teaching resources, and teaching systems and methods. Quality education is still synonymous with expensive costs, which are not fully able to be borne by public resources (state, community, and individual) thus forcing market mechanisms to work in the midst of the limited capacity of quality public schools. Market behaviour has affected educational services, especially non-public education which provides accumulated profits for its managers.

In the digitalization space, the exclusivism of quality education is expected to be broken by utilizing digital media which encourages acceleration in quality distribution and reduces the costs required in financing its operations. The digital space also allows interaction between communities and access to more massive literacy, thus enabling educators and students to have better opportunities to access knowledge resources. In addition, the digital space also provides access to precise information for the government to map access and quality of education, therefore the allocation of resources is much more efficient with more targeted intervention schemes.

The digital space provides a new arena in the educational process where the use of digital media is considered quite effective in providing teaching materials, ranging from; Delivery of learning materials through various animations, videos, and learning applications; Exercises to work on questions through the quiz model; The use of digital space for exploration and experimentation has been widely introduced, both in the form of open source-based platforms and subscriptions.

Although it seems interesting, digital space managed based on algorithmic schemes has fundamental weaknesses that must be anticipated. In the learning process, students as users are given access to interactive support with various content. This interaction is completely controlled by the various codes that make up Artificial Intelligence and Machine Learning. Both ensure that the interaction is two-way between the user and their "virtual tutor". Although the actual interaction is actually just a translator of the user's response to the codes built by the application developers.

Tutors or *content creators are* given various information inputs that they must respond to as a basic information base to train machine logic. On the other hand, students interact directly with machines, where their needs are mapped based on certain patterns that follow the basis of machine algorithms. Tutors and students are as if interact directly, but in practice, they are mediated by machines.

In contrast to the multi-interactive nature of the education process in schools, students can confirm information and knowledge from various sources, including discussing many specific things directly without being limited by either the teacher or fellow students. On the other hand, teachers and students alike have the opportunity to digest unique information, explore a diverse literature base and add instincts from their respective life experiences that form a stock of knowledge in the teaching and learning process. Likewise with

social interactions involve the process of emotional and spiritual maturation. The engine will not provide this space in a complex manner, the engine only responds to interactions between users based on patterns that have been built by the developers.

In jobs on digital platforms, there is the term gamification, where workers are treated like gamers in a game. They are given incentives based on their activities in responding to job orders. In the world of education, Gurumurthy calls it *learningification*, the process when digital platforms with their algorithms take over the unique role of teacher-student interactions, where digital platforms try to direct a student to learn certain topics more largely and ignore other topics. As a result, there is a polarization where students who like certain topics will tend to dislike other topics. The limitations of algorithms in capturing complex information in education give birth to failure to build students' character in the learning process.

This model is widely applied in various learning platforms that create their own curriculum schemes in the education process. As long as this platform is used as a supporting media, it will certainly help the learning process. Having the condition that complex interactive roles between teachers, students, parents, fellow students, and the surrounding environment are still managed dialectically. On the other hand, if the platform actually controls the learning process, there will be a terrible danger in the educational process which is a pseudo-process.

Several things need to be anticipated in the development of the digital education process; hence it is not implemented by an algorithm-based machine in AI/ ML, on the contrary, it mustremain under the control of subjects in education, including; student facial recognition; student emotional management; absolute evaluation and assessment; instructional content director; direction of interests and talents.

Another prerequisite is the absolute obligation of digital platform developers to maintain all data on their interactions with users as privacy which should not be used for commercial purposes, both regarding their products or their business affiliates or for the commercial interests of other parties. This is because the educational process requires intensive interactions that record all complex processes in it, if the interaction data becomes a commercial database, it will be dangerous for users, as well as cumulatively for the resilience of a nation. For this reason, a comprehensive regulation of data protection in digital interactions is needed and transparent audits are implemented regularly by an independent committee. Complaints also need to be considered to continuously improve the data protection system that is more effective.

Digitalization in the world of education can develop as a supporting factor, yet digitalization will hardly replace the education system as a whole. There are still many factors that cannot be replaced by digital technology in the world of education. Communication between humans, direct touch, and human interaction factors are still highly important in the world of education and these are still difficult to replace by digital technology. Artificial intelligence has the ability to analyse and store patterns in their database, but the model is still difficult to use in education because the modelling system is still different from human interaction and the process of knowledge generation.

The panellists agreed that handing over the educational process to digital technology is a difficult and risky issue. "Education is not a transaction between producers and consumers, alike commercial services, education is a dialectical process, transfer of knowledge and values" [Jane, 2021]. Therefore, digital technology is in the position of providing service facilities, supporting the education process as a whole.

source : https://static.politico.com/

PRIORITY ISSUES
CHAPTER 3

LABOR & SUPPLY CHAINS

"Digitalization does not always provide opportunities for workers with digital talent, but instead absorbs more precariat workers; part-timers, driver-partners, couriers, etc. that are not protected by adequate regulations."

- Bhima Yudistira

The occurrence of global supply chain disruptions has encouraged several countries to think about conducting a trade policy review agenda (EU is currently doing it); then Indonesia by building the GVC agenda using the Omnibus Law; and thirdly, the industrial relocation plans, especially from China (there may be indications related to the sharpening trade war between the US and China), including the strengthening of production regionalism. The dependency of the global south on global supply chain activities will also create a big impact. Including the changing of the industrial mode of productions into industry 4.0 has also implications for the working relationships with the companies.

A. Post-Pandemic Global Industrialization

The Covid19 pandemic gave birth to global pressures that were felt in almost all countries and the impact of the pandemic had affected global economic

growth which had not yet fully recovered since the 2008 financial crisis. The Covid19 pandemic became a turning point for the industrialization process and global trade regarding several main aspects. First, the importance of accelerating the use of digital technology in various aspects of life, ranging from the trade, financial sector to manufacturing production systems. Second, the strengthening of the spirit of de-globalization to anticipate bottlenecks in industrial supply chains that are globally interdependent towards supply chains based on intra-regions. Third, the mass use of new technologies has consequences for the need for new materials that have begun to marginalize the role of primary industrial exporting countries.

"The platform sells not based on product quality, but based on the vendor's ability to pay for advertising services on the platform, thus MSME actors are often stranded at the bottom when consumers are looking for them."

- Abhijit DAS

The technology industry is different from the manufacturing industry. In the past car manufacturing needed complex systems, now the technology industry only sells simple services, but they produce tremendous commercial value. In the early days, the technology industry only provided food delivery facilities, but in turn, it will transform to take over the entire supply chain from food businesses, thanks to its ability to regulate consumer tastes. This situation, in the long term, will have a tremendous impact on the production system and human relations.

source : https://www.unicef.org/

Digital transformation is increasingly massively in all business sectors, with the use of *Artificial Intelligence (AI)* and *Machine Learning (ML)*, where the industry is able to reduce labor costs in various sectors. As a result, the globalization process, which is driven by efficient efforts to find production locations with low wages, is now experiencing a shift where the intensity of technology in developed countries can outperform low wages in developing countries. Meanwhile, the majority of developing countries still have a low-skill workforce, therefore the role of the state is needed to support the transition process. In the long term, this will generate a backflow of investment to northern countries by encouraging investment in capital-intensive manufacturing sectors that are closer to their domestic market access. Meanwhile, in developing countries, market competition is getting tougher, given the occurrence of excess production capacity which is exchanged among developing countries.

"Digital talents, have the opportunity to work flexibly, but eventually lose the right to disconnect."

"Global initiatives are needed to respond to the future of work, along with the increasingly massive flexible job market and the use of robotics technology, especially after the Covid19 pandemic which demands increasingly massive use of IT."

- Maria Emeninta

The post-pandemic will supposedly make China be the biggest power in global industry and trade, and direct competition between Chinese products and European and US products will start to compete fiercely in the global market. For developing countries with relatively slow industrial development *(Late*

Manufacturing Countries), the threat of the entry of quality imported products will encourage the weakening of their domestic production capabilities. Protectionist policies will be faced with market rationality towards the need for quality products at competitive prices. Options for developing countries are decreasing.

B. The Digital Workforce and Its Challenges

The World Economic Forum (WEF) predicts that there will be a 5-6% growth per year in the demand for labor in the new professional cluster. The shift in employment trends is in tandem with the swift current of the industrial revolution 4.0 through fundamental changes in the pattern of economic development. Especially in the production process in various industries, including; logistics governance processes, marketing, and relationship management between producers, retailers, and consumers.

As a consequence, there have been two major shifts in the global industrial system; First, *shifting* in the production flow of existing industries, for example in the logistics, retail, marketing, banking, and manufacturing industries, where business processes have begun to shift from the use of labor to the use of *software* which indirectly encourages the massification of capital-intensive industries in all sectors. Second, the emergence of new industries based on digital technology to break through the inefficiencies of conventional business practices. The majority of these industries appear in the service sectors such as *Financial Technology*, *Online-Marketplace*, *Online Transport*, *Online-Accommodation*, *Food and Beverages*, *Daily services*, etc. Its characteristic is the birth of a new industry as an intermediary for services that are usually done informally through digital platforms.

- Shifting Existing Industries

  Almost all repetitive jobs with simple logical structures are expected

to be replaced by *software* that has the ability to recognize the work process. The existence of humans only runs the control system and as a follow-up that cannot be handled perfectly by machines. Along with dynamic data input, the machine's capabilities will continue to grow more complex.

The Industrial Revolution 4.0 is more based on input information in *real-time* so that its development is very dynamic where machines are trained to acquire the entire production process *(machine learning)*, both in terms of knowledge, experience, and technical skills possessed by workers.[1] This acquisition process is a process of collective dispossession of workers whose results have the potential to remove workers from the production space. Without the collective experience of workers as information providers, AI and ML engineers will not be able to create a coding structure that can recognize jobs with precision.

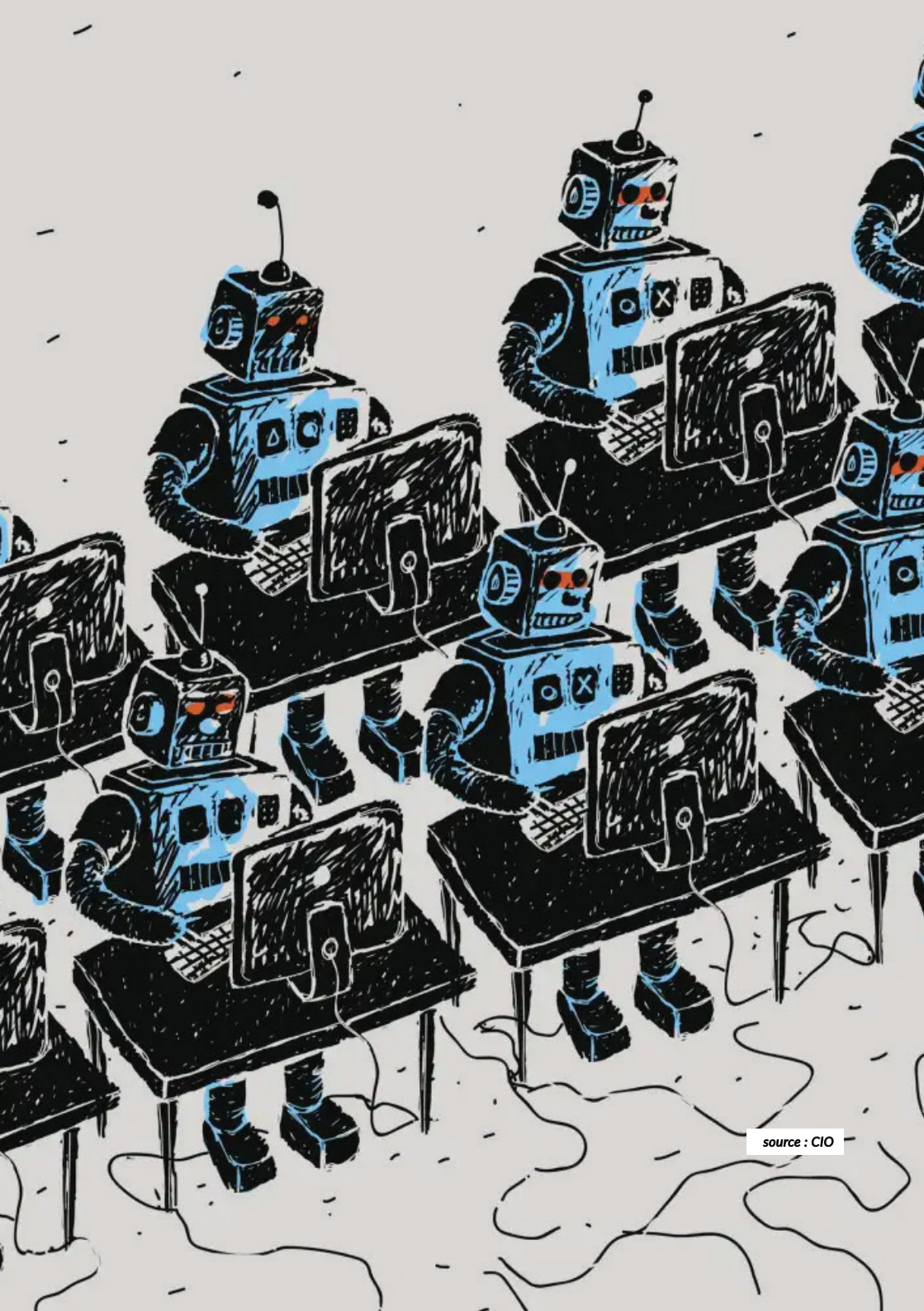
This efficiency process is often not realized by workers individually or collectively, they are not aware that all data and information from the process throughout the year are used as the main information base for compiling coding. In turn, when the *software* has been created, the workers also play a role in assisting the machine, ensuring *software* errors are kept under control, and getting additional inputs to make the *software* more precise and complex. At the same time, the rationalization of workers is implemented on the grounds that their role has been replaced by *software*. Finally, when the *software* has been able to fully control business processes, there is a transition from workers who are placed as assistants to be completely replaced by *software* and technicians who oversee their existence.

1. *Pozdnyakova, et, al, Genesis of the Revolutionary Transition to Industry 4.0 in the 21st Century and Overview of Previous Industrial Revolutions, in Popkova, et, al, 2019, Industry 4.0: Industrial Revolution of the 21st Century, Springe: Moscow.*

Information feeding is then shifted from assistant workers to consumers, to ensure the *software* gradually meets the demands of the convenience of its users. At this stage, User Experience and User Interface are needed and completely replace workers as assistants. The existence of workers is really minimal and only as a back-up when the system built is damaged. The nature of the work changed from permanent to temporary workers or at least trimmed from workers who have a *career path*, to become static workers who are only at the same stage forever.

Some industries that have long-term prospects, such as banking, offer schemes with job *shifting*. Workers replaced by the *software* were shifted to developing new business lines, mainly in other financial services. In the long run, they will also be replaced by new *software* that is created. In essence, in every industry, the need for labor remains to build databases in business processes before it is later handed over to engineers to build a complex algorithm that can streamline the process.

The acceleration of the higher data transmission process allows the implementation of global industrial systems not only to be connected in the context of the supply chain but also to push industrial control beyond territorial and geographical boundaries. The discovery of nanotechnology-based raw materials in basic industries and the application of 3D printing will change the supply chain management system to become more competitive and require a pattern of change from mass-scale industry to custom-based manufacturing. In this model, production is created to innovatively serve the specific needs of each *rigid* consumer segmentation.



source : CIO

- Digital Technology-Based Industries

  The development of communication technology from 4G to 5G and soon to 6G as well as fiber-optic capabilities allow all information flows to be connected in real-time. The application of digital technology will certainly make the development of digital-based industries increasingly rapid. Along with the acceleration of this technology, various digital platforms are also growing and expanding. All lines of life that were previously run *person to person*, with all their flexibility are taken over by digital platforms. The platform only positions itself as an *intermediary* by taking a commission from each service provided by 10-30% for each service provided. Services that have been carried out formally, such as pharmacies, doctors, education to legal consultations, have begun to be carried out online through remote information base services summarized through AI and ML.

  The digital platform has become a new business opportunity and is increasingly popular due to the process of expanding its dominance through massive promotions, especially on social media, paying for search engine facilities such as Google, and the 'burn money' strategy in massive promotions. The power of capital is very prominent in this process. The increasing number of platforms in this type of competition has made more business actors, including big players, respond by joining through services such as marketplaces with *direct-selling* schemes from brand holders/distributors directly to consumers.

  This business is starting to be of interest to importers to be able to get a significant price difference from large-scale purchases directly from producers in the exporting country and sold retail in the local marketplace. This condition increases the very high demand for *low-skill* daily workers such as goods processing workers starting from

receiving orders, preparing goods, packaging, and couriers. On the other hand, the consequences of local producers otherwise suffered heavy losses due to competition.

The existence of digital services gives birth to vulnerable types of work, where workers work *part-time* without clear legal protection. The platform acts as an intermediary between services whose workers do not have a definite legal protection status to access decent labor standards. The digital platform ignores the workers in it, the workers are positioned as partners. Business people get a fairly large turnover but do not fulfil formal legal obligations such as the requirement to be a business entity and binding business contracts. On the employment side, they also cannot be supervised by labor inspectors and are not recorded in the mandatory labor report. As a result, workers are in informal positions without ties and labor regulations that protect their minimum rights, such as minimum wages, social security, and many more.

In other service sectors, such as transportation and couriers, there is no formal employment bond between the platform provider and the vendors who carry out their work. The vendors (drivers, cleaners, therapists, etc.) are considered partners. The bond is only in the form of an obligation to get the attributes provided by the company with the obligation to pay cash or with specified instalments. The company does not provide payment in any form to them, instead, it only acts as an intermediary for consumer orders. On each order, the company gets a profit in the form of a commission of 10-30%. The accumulated money earned can be taken by partners for a certain duration, some are real-time, daily, weekly, and monthly.

In this service-based digital industry, although it seems that workers

are very flexible in determining the working hours and income they want, in turn, the company builds a *rigid* algorithmic system by looking at consumer assessments of partners and the activeness of partners in taking jobs. These things are quantified in the *rating* formulation which will affect the order distribution process by the digital platform to partners.

In digital platform-based jobs, such as online motorcycle taxis, online couriers, and so on, the term *gamification* appears, where workers are treated as a game in a game. They are given incentives based on their activities in responding to job orders. The process of orders and information between workers and consumers is completely controlled by a complex algorithm, as well as the incentives offered are all determined by the machine. Workers are required to compete with each other as a competitor in the process of the working controlled algorithm [Savignac, 2016; ILO, 2021].

If an employee deactivates his account to avoid orders for a certain period of time, his rating will tend to decline compared to other active workers. As a result, the incentives offered are much lower and orders are rare. Even though this online worker seems to have complete freedom to manage his work time, he is faced with an algorithm that is always working on making assessments with various complex indicators that cannot be avoided. This *gamification* scheme for partners is regulated by computer algorithms, there is no room for negotiation between the two parties, except when there are errors that will be served by the company's *customer service*.

Digitalization does not always provide opportunities for workers with *digital talent* but instead absorbs more precariat workers; *part-timers*, driver-partners, couriers, etc. that are not protected by

adequate regulations. The *digital talent* has the opportunity to work flexibly, but eventually, it lost the right to rest *(right to disconnect).* In the current development, there have been many efforts to provide protection to its workers, one of which can be seen in the court effort in California that forced Uber to comply with applicable regulations and be responsible for its workers.

C. Regulatory Arrangement Needs

The exploitation of the platform against partners (workers) occurs excessively, where in order to face a competition between platform providers, tariffs are lowered which automatically affects partners' income. On the other hand, the platform does not limit the number of partners so that market mechanisms occur, which makes the bargaining power of partners very low. To prevent the *process of precariat of the workers* emerged in Europe, or often called uberization, everything that workers do is recorded by data, hence it can be learned by the machine and the machine is finally able to accumulate the intelligence of the workers, even the helmets and bracelets made by workers, can record all activities both during work and rest, all of this happens without anyone being paid. Uber has acquired the intelligence of these drivers and is now offering driverless smart cars.

The experience of online motorcycle taxi drivers in Indonesia is trying to pressure the government to enforce regulations, including; regulation on the minimum rate per KM, regulation of accident insurance obligations while in the order process, and restrictions on the number of partners in certain areas. All three are schemes to ensure that the bargaining power of partners/workers is high enough in front of platform developers. This scheme seems to have only touched business actors in the online transportation sector, while there are no official arrangements for other service platforms. Although there has been regulation, it is still far from the standard of labor regulation that should be.

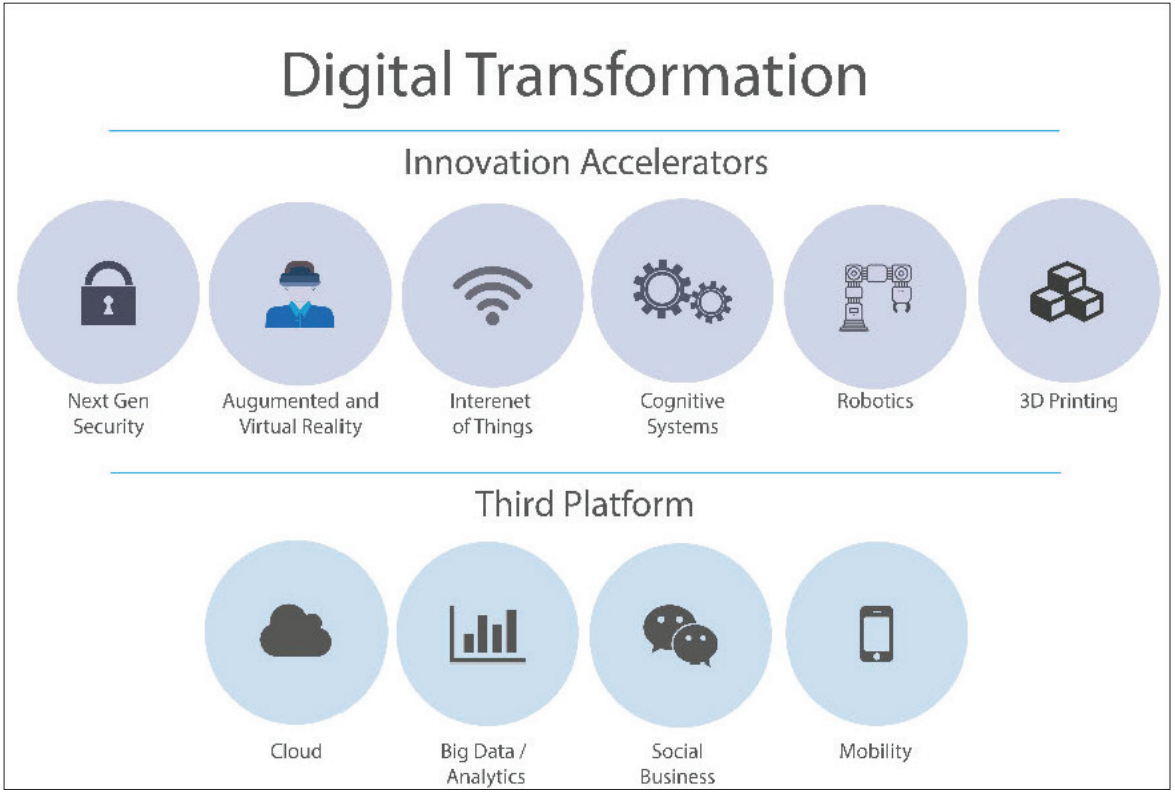


illustration https://blog.goodelearning.com/

In the marketplace sector, exploitation often occurs through efforts to lead to monopolies and oligopolies, where platform providers will try to kill their competitors. Eventually, there are only big platforms capable of dominating the market. Following the investment and business arrangements among the major platform providers such through the mechanism of mergers and acquisitions in the end formed a bond that leads to the formation of a cartel.

Vendors, especially from the MSMEs, are finally faced with the obligation to consume the services provided by the platform continues to ensure that their stores are always at the top of search engines and offered to users as the right potential customers. Without paying for these facilities, these shops will be stranded at the end of the search engine. Against this needs to be improved by strengthening the position of small and medium-sized businesses not just as a reseller, but also as a player in the marketplace markets, the imposition of tariffs and safeguards as a solution.

We often hear in this digital era that digital platforms are able to encourage exports from MSMEs. The reality is that MSMEs are only participants who are exploited by dominant players, even they are trying to make monopoly efforts that are not profitable for small and medium business actors. While the giant business actors do not report their income tax, small and large business actors are generalized to big business people. This policy indirectly burdens small business actors to survive in the digital marketplace.

Market competition demands commodity price competition, digital platforms play a role of up to 30% in global trade, but they are able to grow by taking advantage of low production costs among MSMEs, regardless of their vulnerability. The platform sells not based on product quality, but based on the vendor's ability to pay for advertising services on the platform, so MSME actors are often stranded at the bottom when consumers are looking for them.

Limited capital makes them unable to buy platform provider services, so the only way to survive is simply to be a *drop shipper* in the marketplace. As a *drop shipper*, you still have to compete with professional *drop-shippers* who do invest capital to finance advertising and manage professional services which are much more competitive. As a result, the promises of marketplaces to provide opportunities for small business actors have not materialized, while job opportunities in traditional markets have begun to erode.

In such conditions, the government must be the main bridge in ensuring that all stakeholders involved in the digital platform business have a balanced opportunity and ensure that there are no attempts to lead to monopoly or cartelization of digital services that lead to consumer losses. Without a commitment to control, restriction, transparency, and the obligation to protect MSMEs, the government is handing over the process of shifting industry 4.0 to a *greedy* system, which ignores its obligations both in terms of taxation and employment. Markets that are not transparent, on the other hand, lead to monopolistic efforts that lead to manipulation which is detrimental to consumers and potential for taxation.

As a result of anti-competition practices among platform players, independent MSMEs (not affiliated with the platform) are increasingly marginalized, hence the government must make strict arrangements, that platforms cannot be entered as vendors in government tenders. The government should also facilitate MSMEs to build platforms that are collectively owned, to prevent dependence on dominant platforms.

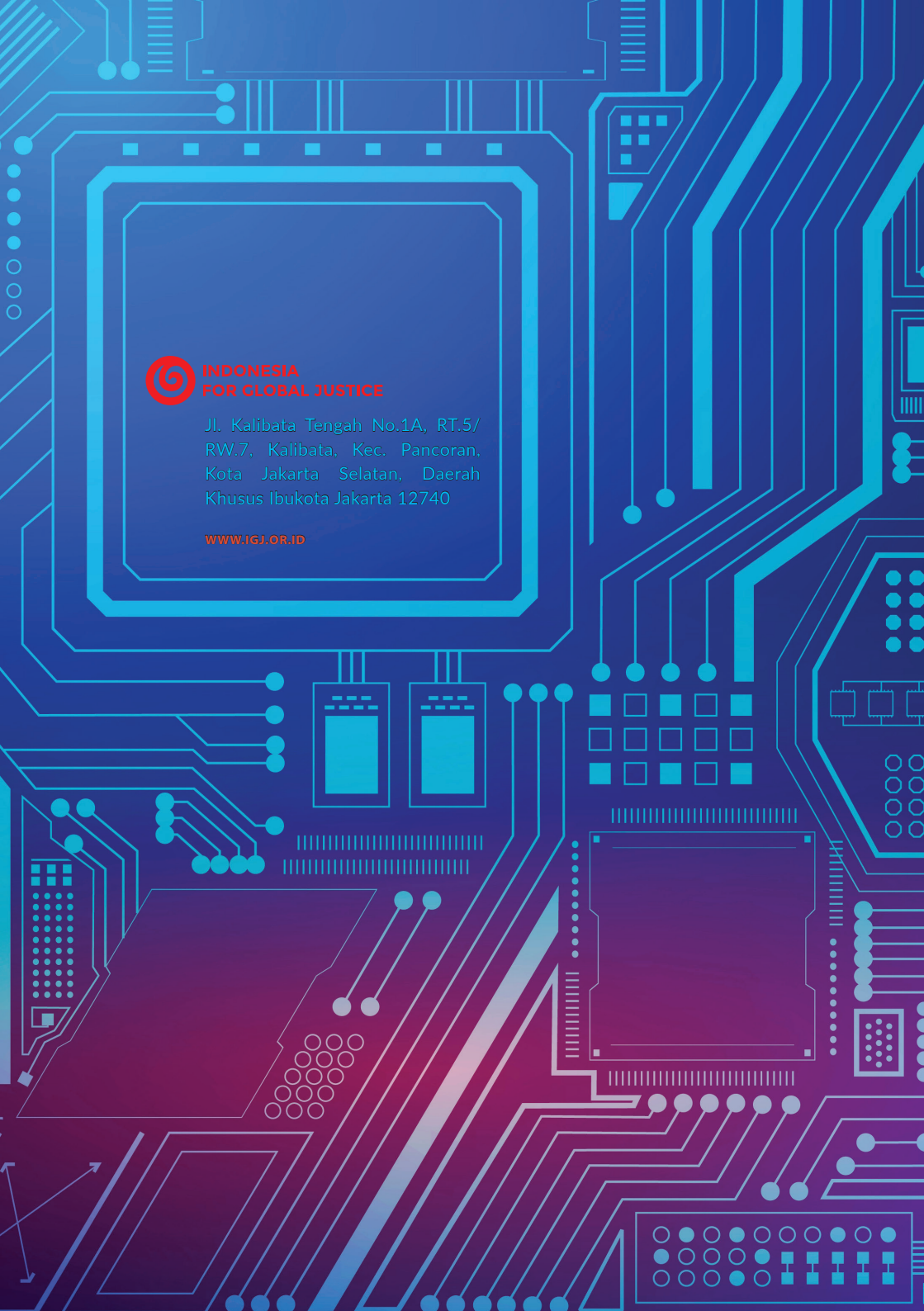
D. The Future Role of Trade Unions

In the context of labor protection, existing labor regulations are often unable

to read the new dynamics that are so dynamic. Workers who are considered as partners do not have protection against minimum wages, social security, and various other rights enjoyed by workers in conventional industries. On the other hand, workers in existing industries are starting to be degraded in terms of welfare and career opportunities, replaced by the application of *software*-based digital technology. Both of these things are a challenge for trade unions as a balancing force in *bipartite* interactions between workers and employers, as well as in a *tripartite* context involving elements of the state.

Fundamental changes in labor regulations are needed to ensure that the state becomes a bridge to prevent the process of precariat the workers in industry 4.0. The effective application of minimum wages by measuring the scale of business and sectoral needs to be applied together with the hourly minimum wages as should be applied in many countries. Likewise, a dynamic universal social security system ensures that the entire population has access to it. Through the universal social security system, the state can track the employment responsibilities of every working population.

Employment regulations must be reorganized to respond to labor market flexibility. In the case of Indonesia, the Omnibus law provides ease of doing business but instead reduces protection for workers, economic development, and decent work for all. Omnibus law, a regulation that is very dangerous for workers and has the potential to increase poverty in Indonesia. The struggle must continue for workers or those involved in digital-based businesses to get their rights as formal workers; enjoy minimum wages, employment contracts, and social security. Finally, a global initiative is needed to respond to the *future of work*, along with the increasingly massive flexible job market and the use of *robotics* technology, especially after the Covid-19 pandemic which demands increasingly massive use of IT.



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