Digitalisation in China: Transformation of the Economy and Social Engineering

Marcin Przychodniak

Chinese authorities promote and finance projects focused on artificial intelligence (AI), big data, and mobile payments at scale. They define digitalisation as an element of the modernisation of the economy, including Chinese companies' drive to achieve global competitive advantages, to be followed by achieving a leading international position in digital technology. Digitalisation, and especially AI, also will become a tool in the country's system of control and evaluation of citizens. The achievement of these premises—according to Chinese government plans they should be reached by 2030—will be difficult, in part because of a lack of qualified personnel.

China's digitalisation policy is oriented on strengthening economic growth based on modern technology. It is supposed to help the country escape the "middle income trap" and increase its competitiveness in the international arena. This concept was underlined by Chinese leader Xi Jinping during the 19th Communist Party of China Congress in October 2017. China's basic digital policy was published in 2015 in "Made in China 2025." It lays out the first complex programme for economic modernisation based on internet technology and digital know-how in China's modern history. In the country's current five-year plan (until 2020), a dozen projects concerning, among others, AI and robotics are being implemented.

Construction of the Digital Sector. The main idea behind China's digitalisation policy is cooperation between the state (which outlines and finances research) and private entities responsible for its implementation. The priority is the development of AI technology, mostly because it has multiple uses, from automation of services and manufacturing to China's system of control over its citizens. By 2030, China is supposed to become, according to a 2017 published Chinese government strategy, a world leader in AI technology. By then, the value of this sector to the Chinese economy is to exceed $150 billion (in 2016, it was around $10 billion). Tests are being carried out to evaluate AI utilisation. Alibaba, a major China-based company, introduced AI algorithms to command local road traffic in Hangzhou, improving flow by 11%. In Zhenghou, police are testing binoculars that can scan faces in real time and verify individual IDs.

AI is very much connected to the development of big data because analysis of large amounts of information helps improve algorithms. China has an advantage here because of the scale effect, as well as the lack of data-protection regulations. Chinese companies frequently collect information on customer preferences and often transfer them to state organs. These institutions—anxious about social unrest—try to prevent the corporations from gathering more data than they actually need, and recently a few official reprimands were issued to companies for doing it without customer approval. The data is collected in various ways, including during mobile payments, in which China is the global leader. In 2016, more than $5 trillion in transactions were performed in China (compared to $112 billion in the U.S.).

China's digitalisation policy is not aimed at the improving market access for EU or U.S. companies. Its goal is to guarantee local companies competitive advantages, gained through protection of its internal market and

sometimes mergers and acquisitions abroad (for example, to acquire new technology). Between 2012 and 2017, Chinese investors put more than $19 billion into foreign companies dealing with robotics and AI technology. Companies from China are increasingly trying to engage financially in the U.S. (although recently, Huawei and Alibaba investments were blocked by the American government based on national security concerns) and extract experts from Western countries (Tencent, Huawei, IFlytek). American competitors of Chinese corporations (Facebook, Google) are present in China but their main products are blocked there, and their daily operations charged with risk, such as intellectual property theft. Apple, for which the Chinese market is essential given its sales and production facilities located there, transferred control of its cloud services and access to its Chinese user data stored there to the Chinese authorities. This stemmed from the adoption of the Cybersecurity Law, which since the beginning of 2017 requires Chinese user data to be stored in the country and access given to the government.

Utilisation of New Technology. Digitalisation has application in areas such as environmental protection, e.g., recycling, and can be helpful in reducing the demographic effects of an aging society (fewer employees) by, for example, automating logistics or facilitating tourism services. According to statistics provided by the Chinese authorities, digitalisation also can increase GDP growth by 1.4% annually, depending on the scope. It is boosted by the growing number of internet and digital technology users, which at the end of 2017 was over 770 million people in China.

Chinese authorities also want to utilise the development of AI to enhance its system of control over citizens. This AI will use data such as face profiles, blood samples, voice samples (phone speech identification), consumer preferences, DNA profiles, and fingerprints. Chinese policy is to increase the number of DNA samples in a database to 100 million by 2020. The samples are even taken for minor law violations, as well as from risk groups, including former criminals or work migrants. These actions, along with the growth of monitoring systems (by 2020 there are to be about 600 million surveillance cameras) are meant to prevent crime but also anti-government activities.

AI algorithms are also meant to support management of the economy through consistent review of current economic decisions made by citizens and business entities in China. The system would include financial data (salaries, loans) as well as social achievements (school marks, criminal records). AI technology is to allow a rapid assessment of a person's behaviour in the context of credit eligibility, and compliance with Communist Party norms. In 2015, Tencent and Alibaba received government authorisation to start pilot regional programmes, and in 2020 the system should be implemented at the national level.

Perspectives. The actual accomplishment of the targets projected by the Chinese authorities by 2030 will be very difficult, including the stabilisation of economic growth through automation and the implementation of an enhanced system of control over its citizens. The results of pilot programmes connected to the evaluation of Chinese citizen behaviour are not very promising. Both Tencent's and Alibaba's programmes are behind schedule. There is also a lack of specialists in the AI sector. About 40% of Chinese experts have less than four years of experience (compared to the U.S., where more than half have 10 years of experience). To reach its goals, China would have to not only expand its research capability (one is being constructed in Beijing for about $2 billion) but also bring in experts from the U.S. and Europe. Moreover, Chinese employees are not educated enough to use modern technology efficiently, and data access and sharing (as part of AI development) is not highly advanced. Digitalisation also may exacerbate existing social inequalities, in part by reducing employment among people with the lowest skills. The McKinsey Global Institute estimated in 2017 that 51% of job-related activities could be automated, which would affect about 400 million workers in China.

For Poland, China's digital policy is a chance to gain access to modern know-how, e.g., in the 5G context or in financing research in the space industry. There is also an opportunity to educate Chinese IT specialists in Poland at much lower costs than in the U.S or Western Europe. Chinese companies like Huawei and ZTE already have gained an important position on the Polish market, mostly by selling their own technology (Huawei has more than 27% of the smartphone market). But Poland should cooperate with China on digital technology with caution. Strengthening Polish-Chinese cooperation on new technology by signing an agreement to promote the digital dimension of China's Belt and Road Initiative or Chinese digital companies taking a bigger share of Poland's public procurement sector could be viewed as contradictory to European Union policy. The EU treats China's digitalisation with distrust, mostly because of cybersecurity concerns but also because of the lack of market reciprocity. Taking this into consideration, Poland should treat state-to-state cooperation with restraint but also promote B2B contact.