# Artificial intelligence and China's authoritarian governance

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The rise of artificial intelligence (AI) has the potential to transform our governments and societies. An AI revolution may make future governments more digital, efficient and economic than ever before. Yet despite all the benefits that AI offers when applied in governance, western democratic societies have considerable concerns regarding civil rights. The authoritarian regime in China, on the other hand, has chosen to fully embrace the age of AI. Nowadays, AI has become a buzzword not only in the capital market but also in the Chinese Communist Party (CCP). To develop AI is now considered China's national strategy, with a clear goal of making the country a leading AI power.[1] China's open ambition in this field has alarmed many of its competitors, especially in the United States and Europe, where many view it as an open challenge to American AI supremacy.[2] In the context of global power transition, the so-called 'AI race' between China and the United States has opened up a new front in their already intense geopolitical competition.

The US–China AI race is not only a technological competition but also an ideological one. China's bold practices of applying AI technologies in state governance have further contested the superiority of western liberal democracy.[3] This article examines the Chinese governance approach towards AI. It shows that China's bold use of AI practices in governance represents an attempt not only to build a more efficient and capable government to deliver better public services,

[1] State Council of China, *Guowuyuan guanyu yinfa xinyidai rengongzhineng fazhan guihua de tongzhi* [New Generation Artificial Intelligence Development Plan] (Beijing, 2017), http://www.gov.cn/zhengce/content/2017-07/20/content_5211996.htm. (Unless otherwise noted at point of citation, all URLs cited in this article were accessible on 23 Sept. 2020.)

[2] Andrés O. Klein, *The US–China race and the fate of transatlantic relations*, part 1: *Tech, values, and competition* (Washington DC: Center for Strategic and International Studies, 2020); Graham Allison, 'Is China beating America to AI supremacy?', *The National Interest*, 22 Dec. 2019; Daniel Castro, Michael McLaughlin and Eline Chivot, *Who is winning the AI race: China, the EU or the United States?* (Washington DC and Brussels: Center for Data Innovation, 2019); Gregory Allen, *Understanding China's AI strategy* (Washington DC: Center for a New American Security, 2019); Andrew B. Kennedy and Darren J. Lim, 'The innovation imperative: technology and US–China rivalry in the twenty-first century', *International Affairs* 94: 3, May 2018, pp. 553–72; Xiangfeng Yang, 'The great Chinese surprise: the rupture with the United States is real and is happening', *International Affairs* 96: 2, March 2020, pp. 419–38.

[3] For example, Wright argues that AI-related technology is empowering China's digital authoritarianism and thus its global competition with liberal democracies. See Nicholas D. Wright, 'Artificial intelligence's three bundles of challenges for the global order', in Nicholas D. Wright, ed., *Artificial intelligence, China, Russia, and the global order* (Maxwell Air Force Base, AL: Air University Press, 2019).

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but also to strengthen state control to ensure the continuation of the authoritarian order. The article argues that the application of AI in China's governance should be understood in the wider context of the CCP's broad and incoherent strategy of adaptation to governance by digital means.

The CCP's successful employment of digital technologies to strengthen its governance is made possible by China's unique socio-political environment. China's huge internet market has provided, in effect, unlimited data with which to train and advance AI programs. As the world shifts from 'the age of expertise to the age of data',[4] data are a strategic resource that lays the foundation for digital technologies such as AI. As Kaifu Lee, one of the most prominent figures in the Chinese internet sector, points out, data—rather than computing power and AI talents—constitute the most important factor to ensure successful AI algorithms, as 'once computing power and engineering talent reach a certain threshold, the quantity of data becomes decisive in determining the overall power and accuracy of an algorithm'.[5] In 2019, China had over 854 million internet users—and, with this representing only 61.2 per cent of its 1.3 billion population, long-term growth potential;[6] by comparison, the United States had only 312 million users with less than 10 per cent offline population in which to expand.[7] In this respect, as the 'Saudi Arabia of data', China has considerable comparative advantage in developing its AI industry.[8]

Moreover, weak civil awareness within Chinese society, combined with the CCP's strong state power, including a well-resourced domestic security sector, has put the regime in a favourable position not only to exploit its data advantage but also to enhance state control via digital means. For example, China is now leading AI technology in areas such as facial recognition that Europe and the United States have put on hold—or even banned—owing to privacy concerns. In contrast to western democratic societies, for China the key barrier to AI advancement lies in technological rather than legal constraints. More importantly, AI is not just another powerful tech tool to boost China's digital surveillance; AI's automation of decision-making capability without human intervention is unleashing the potential of China's sophisticated digital surveillance network in ways that this article will explore. In this respect, the Chinese approach towards digital technology has to date been successful in furthering state power and capacity.

The question then arises: will AI eventually strengthen authoritarian rule or not?[9] While AI has been enhancing the capacity of China's domestic security sector, the AI-powered digital surveillance apparatus alone—no matter how powerful it

[4] Kaifu Lee, *AI superpowers: China, Silicon Valley, and the new world order* (Dublin: Houghton Mifflin Harcourt, 2018).

[5] Lee, *AI superpowers*.

[6] Xiaoxia, 'China has 854 mln internet users: report', *Xinhua*, 30 Aug. 2019, http://www.xinhuanet.com/english/2019-08/30/c_138351278.htm, accessed on 28 Sept. 2020.

[7] J. Clement, 'United States: number of internet users 2000–2019', *Statista*, 7 Jan. 2020, https://www.statista.com/statistics/276445/number-of-internet-users-in-the-united-states/ accessed on 31 May 2020.

[8] Lee, *AI superpowers*.

[9] Marlies Glasius, 'What authoritarianism is … and is not: a practice perspective', *International Affairs* 94: 5, Sept. 2018, pp. 515–34.

is—cannot guarantee the continuation of the CCP; and surveillance programs are only one aspect of the use of AI in China. AI's overall impact is shaped by its interaction with the CCP's key sources of legitimacy, including economic growth, social stability and ideology. Faced with a slowing Chinese economy, the CCP has been counting on a booming high-tech industry to maintain economic growth and thus its legitimacy.[10] Its bold plans for AI were born in this economic context, and the Chinese government has spelled out specific economic targets for its AI industry. In this respect, the economic factor is the most important indicator by which to measure whether China's plans succeed or not. Should the country's AI plans deliver a booming AI industry, this will no doubt help the CCP to deliver material goods and thus win popular support.

Yet China's rush towards a booming AI economy entails considerable risks. Indeed, the transition towards the age of AI will bring unprecedented social transformations, including but not limited to a restructuring of the workforce. China's proactive push towards an AI economy will only accelerate this process and thus increase the associated risks, while the more cautious approach taken by other countries may mitigate the pain. Given its proactive state approach and its huge population—the world's largest—China will be the country most strongly affected during the transition towards the age of AI. Failing to address consequential social problems such as unemployment will threaten China's social order and thus its authoritarian governance. In this respect, while its AI practices contribute to social stability by empowering the state security apparatus, they may at the same time undermine that stability through the social transformation they will bring about.

Finally, AI seems to be a perfect match for the CCP's ideology. AI has the potential to build super-intelligent computing models that can predict market forces without human intervention; this capability may lead to a fundamental reconsideration of our existing perspectives on the flaws of the planned economy and the superiority of the free market. China may evolve into an AI-driven central planning system that maximizes efficiency in allocating market resources. If successful, this will essentially upgrade its Soviet-style national central planning, producing a powerful digital technocracy with which liberal democracy can hardly compete.[11]

In addition, with rapid technological development, AI's efficiency may reach a point where machines can produce abundant material goods and services without the need for any human labour. This will abolish the social contract of 'work for a living' that has existed ever since the birth of human society. By then, human society may be entering an ideal utopian world, in which everyone has free and equal access to the distribution of goods, services and capital—the communist society that Karl Marx envisioned in the 1840s. This will lead to a revisiting of the debates on communism vs capitalism and 'the end of history'. For the CCP's

[10] Rosemary Foot, 'Remembering the past to secure the present: Versailles legacies in a resurgent China', *International Affairs* 95: 1, Jan. 2019, pp. 143–60.

[11] Daniel Araya, 'Artificial intelligence and the end of government', *Forbes*, 4 Jan. 2019, https://www.forbes.com/sites/danielaraya/2019/01/04/artificial-intelligence-and-the-end-of-government/#678b0efc719b.

ideological legitimacy, it may be a game-changer. Since the market reforms of the 1980s, the CCP has been suffering from a self-made fundamental contradiction between its declared commitments to socialism and its generation of economic success through quasi-capitalist policies.[12] Should AI unlock the potential of central planning and produce sufficient material goods in the remote future, the age of AI will favour the CCP's ideological values and thus its legitimacy. In these respects, the AI revolution is also an ideological revolution.

This article draws on both open-source material and fieldwork in China, and proceeds below in five sections. The first section reviews the literature on authoritarian governance in the digital age. The second section discusses how the CCP has been taking advantage of AI, not only to improve public services but also to enhance its state surveillance capacity. The third section analyses the socio-political factors unique to China that enable it to take this bold approach to AI. The fourth section discusses the overall impact of China's AI approach on the CCP's legitimacy by studying how it affects economic growth, social stability and ideology. The fifth section summarizes and concludes the key arguments of this article.

## Authoritarian governance in the digital age

The rise of information and communication technologies (ICT) was once considered to pose an existential challenge to authoritarian regimes. This view was particularly popular after the Arab Spring in the early 2010s. At the time, Egypt's 'Facebook Revolution', Syria's 'YouTube Uprising' and Iran's 'Twitter Uprising' were all hailed as movements in a 'social media revolution',[13] leading to considerable hope for a fourth wave of democratization.[14] From this emerged the concept of 'liberating technology', according to which ICT has liberating effects capable of overthrowing authoritarian regimes by promoting the free flow of information and collective mobilization.[15] The subsequent painful retreat of political transition in the Middle East, however, has led to much reflection on ICT. While its use can certainly shape politics, ICT is a tool whose effects depend on the context in which it is deployed, and accordingly its function as a driving force of democratization needs to be reconsidered.[16]

[12] Jinghan Zeng, *The Chinese Communist Party's capacity to rule: ideology, legitimacy and party cohesion* (Basingstoke: Palgrave Macmillan, 2015).

[13] Mona Eltahawy, 'Facebook, YouTube, and Twitter are the new tools of protest in the Arab world', *Washington Post*, 2010, https://www.washingtonpost.com/wp-dyn/content/article/2010/08/06/AR2010080605094.html, accessed on 1 Oct. 2020; Yevgeniy Golovchenko, Mareike Hartmann and Rebecca Adler-Nissen, 'State, media and civil society in the information warfare over Ukraine: citizen curators of digital misinformation', *International Affairs* 94: 5, Sept. 2018, pp. 975–94.

[14] Ahmed Abushouk, 'The Arab Spring: a fourth wave of democratization?', *DOMES: Digest of Middle East Studies* 25: 1, 2016, pp. 52–69; Philip Howard and Muzammil Hussain, *Democracy's fourth wave? Digital media and the Arab Spring* (Oxford: Oxford University Press, 2013).

[15] Larry Diamond, 'Liberation technology', *Journal of Democracy* 21: 3, 2010, pp. 69–83; Marc Lynch, 'After Egypt: the limits and promise of online challenges to the authoritarian Arab state', *Perspectives on Politics* 9: 2, 2011, pp. 301–10; Jan Pierskalla and Florian Hollenbach, 'Technology and collective action: the effect of cell phone coverage on political violence in Africa', *American Political Science Review* 107: 2, 2013, pp. 207–24.

[16] Maeve Shearlaw, 'Egypt five years on: was it ever a "social media revolution"?', *Guardian*, 2016, https://www.theguardian.com/world/2016/jan/25/egypt-5-years-on-was-it-ever-a-social-media-revolution, accessed on 1 Oct. 2020.

The successful adaptation of ICT to authoritarian contexts has led to an opposite argument, based on the concept not of 'liberating technology' but of 'repressive technology', according to which these technologies have in fact strengthened authoritarian governance.[17] While facilitating the free flow of information on the one hand, on the other they have given authoritarian regimes both more advanced digital tools with which to *block* this flow and the capacity to shape public opinion by disseminating pro-state views and promoting misinformation campaigns.[18] In other words, when facing the challenges brought by ICT, authoritarian regimes can remain resilient by responding appropriately; some have even strengthened their authoritarian governance by mastering ICT to help their cause.

China is the most frequently mentioned and most successful example of this response. The CCP has viewed AI, along with other digital technologies, as useful to strengthen its authoritarian rule—its so-called institutional security (*zhidu anquan*). It has a proven track record of equipping itself with cutting-edge digital technologies to achieve the so-called 'modernization of governance capacity'.[19] For example, China has invested heavily in the Golden Shield Project (one of whose subsystems is famously known as the Great Firewall) to strengthen state control.[20] This and other such initiatives all reflect the CCP's survival strategy of adapting itself to the digital age and enhancing its governance by electronic means. The CCP's successful digital practices show that resilient authoritarianism can not only cope with the profound challenges brought by the internet but also lead the digital trend. This is further demonstrated by the CCP's approach towards AI, explored in this article.

This article considers AI as an umbrella term referring to a wide range of digital technologies with the ability 'to perform tasks that would usually require human intelligence'.[21] There are three types of AI: narrow, general and super AI.[22] Narrow AI (also called weak AI) refers to digital technologies with a narrow range of ability that is dedicated to specific tasks such as the iPhone virtual assistant Siri, drone robots and self-driving cars. It is the most basic generation of AI and performs below human level. The current state of AI development belongs to this narrow AI generation. General AI (also called strong AI) is a more advanced generation that has yet to be achieved; it will have cognitive abilities that can perform as well as human intelligence. Super AI—which is still hypothetical—represents the most

[17] Espen Rod and Nils Weidmann, 'Empowering activists or autocrats? The internet in authoritarian regimes', *Journal of Peace Research* 52: 3, 2015, pp. 338–51; Nils Weidmann, 'Communication, technology, and political conflict: introduction to the special issue', *Journal of Peace Research* 52: 3, 2015, pp. 263–8; Jinghan Zeng, 'China's date with big data: will it strengthen or undermine the authoritarian rule?', *International Affairs* 92: 6, 2016, pp. 1443–62.

[18] Gary King, Jennifer Pan and Margaret Roberts, 'How censorship in China allows government criticism but silences collective expression', *American Political Science Review* 107: 2, 2013, pp. 326–43; Gary King, Jennifer Pan and Margaret Roberts, 'Reverse-engineering censorship in China: randomized experimentation and participant observation', *Science* 345: 6199, 2014, pp. 1–10; Zeng, 'China's date with big data'; Evgeny Morozov, *The net delusion: the dark side of internet freedom* (Philadelphia: Public Affairs Philadelphia, 2011).

[19] Zeng, 'China's date with big data'.

[20] Zeng, 'China's date with big data'.

[21] *Oxford Dictionary of Phrase and Fable* (Oxford: Oxford University Press, 2005), https://www.oxfordreference.com/view/10.1093/oi/authority.20110803095426960.

[22] Andreas Kaplan and Michael Haenlein, 'Siri, Siri, in my hand: who's the fairest in the land? On the interpretations, illustrations, and implications of artificial intelligence', *Business Horizons,* no. 62, 2019, pp. 15–25.

advanced generation of digital technology currently conceived; it will have strong self-awareness and be able to surpass human intelligence in all areas. This article is mostly about narrow AI, but also briefly touches upon general and super AI.

## AI: towards good governance?

In order to put its strategic approach to advancing its AI industry into practice, the Chinese central government has issued a series of strategy papers to promote AI growth. These include the '"Internet+" AI Three Years Implementation Plan', jointly issued by the National Development and Reform Commission, the Ministry of Science and Technology, the Ministry of Industry and Information Technology, and the Cyberspace Administration of China in 2016, and the 'New Generation AI Development Plan', issued by the Chinese State Council in July 2017.[23] The latter announced China's ambition to become a leading AI power by 2030 through a three-step plan. The subsequent 19th CCP Congress report echoed the plan in emphasizing the critical role of AI in making China a major manufacturing power in the near future.[24] In the relevant official policy documents, 'to develop AI' has become a broad policy slogan, leaving considerable room for interpretation.

AI's application in state governance is one of the aspects of China's development of the sector most keenly followed by international analysts. The Chinese government is very interested in exploring AI's potential in governance, especially in terms of boosting efficiency. Nowadays, Chinese local governments are competing to be pioneers of so-called 'intelligent government'. Guangzhou municipal government, for example, claimed to be the first in China to introduce facial recognition and 'AI + Robot' approval technology into state regulation of the commercial field.[25] In 2017, Guangzhou Municipal Bureau of Industry and Commerce introduced the 'AI + Robot' full electronic commercial registration system. This new system shortens the application process for commercial registration business licences from three days to just ten minutes by employing technologies including facial recognition electronic signature and AI identity verification.[26] Following pilot experiments, the model has now been introduced across the entire city of Guangzhou.[27]

Since 2018, Zhejiang provincial government has been working with Alibaba, a leading Chinese tech company, to use AI to improve its government consultation

[23] State Council of China, *'Hulianwang +' rengong zhineng sannian xingdong shishi fangan* ['Internet +': AI three years implementation plan] (Beijing, 2016), http://www.gov.cn/xinwen/2016-05/23/content_5075944.htm; State Council of China, *Guowuyuan guanyu yinfa xinyidai rengongzhineng fazhan guihua de tongzhi* [New Generation Artificial Intelligence Development Plan].

[24] China, Xi Jinping's Report at the 19th Party Congress (Beijing, 2017) http://www.xinhuanet.com/english/special/2017-11/03/c_136725942.htm

[25] 'Guangzhou jinru "rengong zhineng+ jiqiren" quancheng dianzihua shangshi dengji xinshidai' [Guangzhou has entered the new age of 'AI+ robot' full electronic business registration], *Guangzhou Daily*, 2017, http://www.gz.gov.cn/xw/gzyw/content/post_2844115.html, accessed on 1 Oct. 2020.

[26] Guang Lyu and Linguo Hu, 'Santian bian shifenzhong guangzhou shangshi dengji shixian quancheng "wurenhua"' [From three days to ten minutes, Guangzhou Commercial Registration has achieved 'unmanned' operation], *Xinhua*, 2017, http://m.xinhuanet.com/2017-10/10/c_1121782569.htm, accessed on 1 Oct. 2020.

[27] 'Guangzhou jinru "rengong zhineng+ jiqiren" quancheng dianzihua shangshi dengji xinshidai'.

and complaint reporting platform. It has made use of AI and machine learning to process provincial and city data and to establish both a comprehensive provincial government affairs knowledge base and a personalized local government affairs knowledge base.[28] In order to provide more diverse and inclusive public service, Zhejiang provincial government has worked with Alibaba to create the first government affairs-focused AI trainer team in China to facilitate the process.[29]

The Chinese central government has also applied AI in the area of public safety. For example, the Chinese Ministry of Public Security has adopted facial recognition and simulation technology in the fight against child trafficking. The relevant technology solves two key difficulties faced by traditional methods.[30] The first difficulty is that a child's appearance will change significantly over the years after she or he disappears. Using a facial simulation growth algorithm, the relevant technology can help to generate a photo of what a child looks like today based on a photo from his or her childhood.[31] The second difficulty is identifying lost children from the missing persons database. After comparing and analysing thousands of photos, it is very easy for human analysts to get confused. AI facial recognition technology, however, significantly enhances not only accuracy but also efficiency: it can reach 99.9 per cent accuracy while making 100,000 facial comparisons per second.[32] This AI technology has successfully helped thousands of Chinese families to find their lost children.[33]

In addition, AI is used to predict crime. Chinese police are working with AI companies to develop a system to assess individuals' chances of committing a crime.[34] Facial recognition technology and gait analysis are used to monitor individual movements and behaviours, such as visits to high-risk places including hardware stores where kitchen knives are sold.[35] If AI software identifies highly suspicious individuals or groups, it will automatically send warnings to the police.[36] As Chinese Vice-Minister of Science and Technology Li Meng commented, 'if we use our smart systems and smart facilities well, we can know beforehand … who might be a terrorist, who might do something bad'.[37] This AI application is making *Minority Report*-style policing a reality.[38]

[28] Xiaoyan Zhao, 'Zhejiang chengli quanguo shouzhi zhengwu rengongzhineng xunlianshi duiwu' [Zhejiang created the first government affairs focused AI trainer team], *China News (Zhejiang)*, 2019, http://www.zj.chinanews.com/jzkzj/2019-01-23/detail-ifzcufai2324447.shtml, accessed on 1 Oct. 2020.

[29] Zhao, 'Zhejiang chengli quanguo shouzhi zhengwu rengongzhineng xunlianshi duiwu'.

[30] Qing Ye, 'Renlian shibie rang xunqin buzaishi dahailaozhengzhen' [Face recognition makes searching for relatives no longer a needle in a haystack], *Technology Daily*, 2019, http://www.xinhuanet.com/tech/2019-06/10/c_1124600300.htm, accessed on 1 Oct. 2020.

[31] Ye, 'Renlian shibie rang xunqin buzaishi dahailaozhengzhen'.

[32] Ye, 'Renlian shibie rang xunqin buzaishi dahailaozhengzhen'.

[33] Yan Zhang, 'Gonganbu: jinyibu tuiguang rengongzhineng shibie jishu jinxing daguai' [Ministry of Public Security: to further promote AI facial recognition technology for abduction], *China Daily*, 2019, https://cn.chinadaily.com.cn/a/201906/04/WS5cf5de8ea3101d294da9f01.html, accessed on 1 Oct. 2020.

[34] Yuan Yang, Yingzhi Yang and Sherry Fei Ju, 'China seeks glimpse of citizens' future with crime-predicting AI', *Financial Times*, 2017, https://www.ft.com/content/5ec7093c-6e06-11e7-b9c7-15af748b60d0, accessed on 28 Sept. 2020.

[35] Yang et al., 'China seeks glimpse'.

[36] Yang et al., 'China seeks glimpse'.

[37] Yang et al., 'China seeks glimpse'.

[38] *Minority Report* is a film released in 2002.

Moreover, the potential of AI in data integration is critical to China's governance, given the huge size of its bureaucracy. Contrary to the conventional perception of a highly unified and centralized system,[39] fragmentation has been a key pattern of China's authoritarian regime for decades. Known as a 'fragmented authoritarianism model' within the scholarship,[40] this system combines (a) vertical decentralization, with power and responsibility delegated to different levels of government from the centre to provinces, cities, towns and villages, with (b) horizontal distribution of power among central agencies in Beijing with different but sometimes competing responsibilities.[41] This disjointed pattern of Chinese bureaucracy has allowed high levels of factionalism, localism and departmentalism to emerge, and the associated bureaucratic politics has often produced policy outcomes unwelcome to the central government.[42]

Lack of coordination and communication within different governmental organizations is, then, a widespread problem within China's bureaucracy. Massive amounts of data are held by different governmental organizations in islands or silos of information. China's proactive search for AI support carries hopes of improving this fragmented system. An example is the use of AI in integrating state information and upgrading national surveillance programmes. Since the 1990s, Chinese governmental organizations have invested heavily in surveillance cameras, developing the largest video surveillance network in the world. Among the world's ten most watched cities, eight are in China.[43] In 2018 it was estimated that there was one public camera for every 4.1 Chinese people;[44] that may rise to one camera for every two people by 2022.[45] Since 2015, all public streets in Beijing have been monitored by at least 30 million cameras with the 24/7 participation of 4,000 police officers as part of Beijing's Skynet project.[46]

Nonetheless, fragmentation within the bureaucracy has undermined the effectiveness of China's surveillance programmes. Instead of serving an integrated

[39] For example, many consider China's political system as unified and 'highly centralized', which can be easily mobilized by the central government to achieve its goals. See Christopher Hill, *Foreign policy in the twenty-first century* (Basingstoke: Palgrave Macmillan, 2016).

[40] Kenneth Lieberthal, 'Introduction: the "fragmented authoritarianism" model and its limitations', in Kenneth Lieberthal and David Lampton, eds, *Bureaucracy, politics and decision making in post-Mao China* (Berkeley and London: University of California Press, 1992), pp. 1–31; Kjeld Brødsgaard, *Chinese politics as fragmented authoritarianism* (Abingdon: Routledge, 2018); Lee Jones and Jinghan Zeng, 'Understanding China's "Belt and Road Initiative": beyond "grand strategy" to a state transformation analysis', *Third World Quarterly* 40: 8, 2019, pp. 1415–39.

[41] The system is called *tiaotiao* ('vertical line') and *kuaikuai* ('horizontal pieces') in Chinese.

[42] For examples relating to the Belt and Road Initiative, see Jones and Zeng, 'Understanding China's "Belt and Road Initiative"'; for examples relating to nuclear governance, see Shahar Hameiri and Jinghan Zeng, 'State transformation and China's engagement in global governance: the case of nuclear technologies', *Pacific Review*, publ. online May 2019, https://www.tandfonline.com/doi/abs/10.1080/09512748.2019.1613441?journalCode=rpre20, accessed on 1 Oct. 2020.

[43] Paul Bischoff, 'Surveillance camera statistics: which cities have the most CCTV cameras?', *Comparitech*, 2019, https://www.comparitech.com/vpn-privacy/the-worlds-most-surveilled-cities/, accessed on 1 Oct. 2020.

[44] Thomas Ricker, 'The US, like China, has about one surveillance camera for every four people, says report', *The Verge*, 2019, https://www.theverge.com/2019/12/9/21002515/surveillance-cameras-globally-us-china-amount-citizens, accessed on 1 Oct. 2020

[45] Bischoff, 'Surveillance camera statistics'.

[46] Jingya Zhang, 'Benshi chengqu jiaoqu chengguan tantou quanfugai' [Probes fully cover our city], *Beijing Chenbao* [Beijing morning], 10 March 2015, http://bjcb.morningpost.com.cn/html/2015-10/03/content_368559.htm, accessed on 1 Oct. 2020.

information network, the monitoring data are fragmented and held in isolation within different departments, which are less committed than many expected to the idea of sharing and coordination. Surveillance cameras, for example, are put in place by a wide range of different governmental departments, public institutions and social organizations.[47] The same street may be watched by dozens of cameras owned by different organizations, leading to a high level of meaningless duplication. In addition, those cameras often have different video standards and information systems, making it difficult to integrate and share the monitoring records.[48] Owing to these duplication and incompatibility problems, China's tremendous investment in video surveillance has not achieved what it could have done. In other words, the power of the world's largest surveillance network has ironically been restrained by fragmented bureaucratic politics.

AI is being employed to overcome these problems. In China's 'smart cities' projects, for example, AI technologies have been used to integrate security cameras to break down information isolation within governmental organizations.[49] Cities have piloted experiments to integrate thousands of cameras into city-wide unified video surveillance networks that are capable of having full geographical coverage and 24/7 operation.[50] Here, AI is not only about delivering a technological breakthrough but also about raising internal awareness of the need for bureaucratic coordination in order to maximize efficiency. In this regard, AI may unleash the hidden potential of China's powerful surveillance network.

## China's unique socio-political context for the rise of AI

China's application of AI in governance has attracted considerable public and media attention across the world. Many tech blogs and analyses have been closely following the development of China's high-tech surveillance state for years. The trend is not unique to China; all capable states are applying AI technologies in governance, and AI-powered state surveillance has long been making popular headlines. However, the Chinese government's practices are particularly interesting given the country's massive investment in AI combined with its authoritarian goals. Its primary need to maintain (if not strengthen) its authoritarian rule has provided a unique Chinese mode of AI governance.

To start with, in the absence of checks and balances by a strong legislative power, China's massive domestic security budget allows its state apparatus to invest in expensive cutting-edge technologies to develop its security forces. In seeking to maintain its authoritarian rule, the state has strong incentives to strengthen its control over society, and digital technology is one of its tools. The pages of *International Affairs*, for example, have explored how the Chinese government has

[47] Xiao Han, 'Rang xinxi liudong qilai: rengongzhineng yu zhengfu zhili biange' [Making information flow: artificial intelligence and governance reform], *Shehui zhuyi yanjiu* [Socialism Studies] 4: 246, 2019, pp. 79–86.
[48] Han, 'Rang xinxi liudong qilai: rengongzhineng yu zhengfu zhili biange'.
[49] Han, 'Rang xinxi liudong qilai: rengongzhineng yu zhengfu zhili biange'.
[50] Han, 'Rang xinxi liudong qilai: rengongzhineng yu zhengfu zhili biange'.

adopted 'big data' technology to strengthen the state's so-called 'social management capacity'.[51] This involves a grid-style social management model that represents a surveillance system for maintaining public security and social order. The development of AI in social governance is designed to support this broader social management goal.[52] As the Chinese State Council's 'New Generation AI Development Plan' clearly points out:

> AI technologies can accurately sense, forecast, and provide early warning of major situations for infrastructure facilities and social security operations; grasp group cognition and psychological changes in a timely manner; and take the initiative in decision-making and reactions—which will significantly elevate the capability and level of social governance, playing an irreplaceable role in effectively maintaining social stability.[53]

More importantly, there is a relatively low level of social resistance to mass surveillance in China.[54] It is important to put this into perspective. Even in western democratic states, where there is supposedly a strong legal framework to balance state power, surveillance programmes such as PRISM can still be implemented by the US National Security Agency to monitor American citizens.[55] Chinese society, by comparison, has a much weaker awareness of civil rights, and legal resistance to these surveillance programmes is virtually absent. In 2015, a national security law was passed to allow the Chinese security bureau full access to the data needed.[56]

The overwhelming role of the Chinese state grants it the power to control not only legislation but also public opinion. There is an obvious contrast in media narratives about AI between China and western democratic societies. The public and media discussion over the state use of AI in the West has often been vigilant to its negative impacts, especially its potential invasion of privacy and harm to civil rights. Those topics, however, have never dominated China's public discussion—and not only because China's censorship grants the state capacity to shape national agendas and debates. Regarding AI, the Chinese state has clearly indicated a strong will to influence public opinion. For example, the Chinese State Council's 'New Generation AI Development Plan' includes the objective 'to guide public opinion' about AI as part of national strategy.[57] According to the plan, China should

[51] Zeng, 'China's date with big data'.

[52] Samantha Hoffman, 'Managing the state: social credit, surveillance, and the Chinese Communist Party's plan for China', in Wright, ed., *Artificial intelligence*, pp. 48–54.

[53] Graham Webster, Rogier Creemers, Paul Triolo and Elsa Kania, 'Full translation: China's "New Generation Artificial Intelligence Development Plan" (2017)', *New America*, 2017, https://www.newamerica.org/cybersecurity-initiative/digichina/blog/full-translation-chinas-new-generation-artificial-intelligence-development-plan-2017/, accessed on 1 Oct. 2020.

[54] Zeng, 'China's date with big data'.

[55] James Ball, 'NSA's Prism surveillance program: how it works and what it can do', *Guardian*, 2013, https://www.theguardian.com/world/2013/jun/08/nsa-prism-server-collection-facebook-google, accessed on 1 Oct. 2020.

[56] State Council of China, *Shouquan fabu: zhonghua renmin gongheguo guojia anquanfa* (National Security Law of People's Republic of China) (Beijing, 2015), http://www.xinhuanet.com//politics/2015-07/01/c_1115787801.htm.

[57] State Council of China, *Guowuyuan guanyu yinfa xinyidai rengongzhineng fazhan guihua de tongzhi* [New Generation Artificial Intelligence Development Plan].

fully use all kinds of traditional media and new media to quickly propagate new progress and new achievements in AI, to let the healthy development of AI become a consensus in all of society, and muster the vigor of all of society to participate in and support the development of AI. Conduct timely public opinion guidance, and respond even better to social, theoretical, and legal challenges that may be brought about by the development of AI.[58]

Chinese state media have often highlighted positive AI stories, such as how advanced AI technology has helped thousands of families to find lost children or helped the police to catch criminals with unprecedented speed. These narratives have helped the state to shape public opinion of AI in its preferred way.

In addition, China's state–society relations have produced a unique commercial ecosystem. Although many of China's internet giants are partly financed by foreign capital and are not owned by the state, this has not prevented the latter from receiving their full cooperation—after all, the CCP has party committees in most of those companies as an institutionalized way of influencing their daily operations.[59] Chinese internet giants competed to join the so-called 'national AI team of China' certified by the Ministry of Science and Technology in order to lead the 'National AI Open Innovation Platform'. Each of the first five team members selected was assigned by the Chinese government a distinct strategic area to pioneer—autopilot assigned to Baidu, smart cities to Alibaba, media imaging to Tencent, intelligent voice to iFlytek and intelligent vision to SenseTime.[60] The team was further expanded in 2018 and 2019 to encompass ten more Chinese internet giants, including Huawei, Jingdong and Xiaomi, along with a number of start-up companies.[61]

This kind of business–state relations allows China's security forces to have more access to data owned by businesses than their counterparts in western democracies. At the very least, anything resembling Apple's open refusal to assist the FBI during their encryption dispute in 2016 is unlikely to happen in China;[62] neither public opinion nor the law would side with the company, and the price of saying no to the Chinese government is too high to be contemplated. Unlike their American counterparts, who have been facing strong social pressure against cooperation with the state security sector,[63] many Chinese AI start-ups are actively working with the state to develop surveillance programmes. In 2019, the Trump administration

[58] Webster et al., 'Full translation'.

[59] Emily Feng, 'Chinese tech groups display closer ties with Communist Party', *Financial Times*, 2017, https://www.ft.com/content/6bc839c0-ace6-11e7-aab9-abaa44b1e130.

[60] Qingqing Yang, 'Xinyipi rengongzhineng "guojiadui" liangxiang: Jingdong, Huawei, Xiaomi deng shijia qiye ruxuan' [A new batch of AI 'national teams' debut: JD.com, Huawei, Xiaomi and other 10 companies selected], *21jingji*, 2019, https://m.21jingji.com/article/20190829/herald/7e6e80a529133a8def7465522d701283.html, accessed on 1 Oct. 2020.

[61] Yang, 'Xinyipi rengongzhineng "guojiadui" liangxiang: Jingdong, Huawei, Xiaomi deng shijia qiye ruxuan'.

[62] Arjun Kharpal, 'Apple vs FBI: all you need to know', CNBC, 2016, https://www.cnbc.com/2016/03/29/apple-vs-fbi-all-you-need-to-know.html, accessed on 1 Oct. 2020.

[63] For example, under the pressure of the 'Black Lives Matter' campaign in 2020, Microsoft joined Amazon and IBM in limiting the use of their facial recognition technology by US police. See 'George Floyd: Microsoft bars facial recognition sales to police', BBC News, 2020, https://www.bbc.co.uk/news/business-53015468#:~:text=Microsoft%20has%20become%20the%20latest,facial%20recognition%20technology%20by%20police.&text=It%20called%20on%20US%20lawmakers,enforcement%20use%20of%20the%20technology, accessed on 1 Oct. 2020.

imposed sanctions on a few such companies—some of which were members of the abovementioned 'national AI team of China'—in protest over their technical assistance to the Chinese government to strengthen its high-technology surveillance in Xinjiang province.[64]

Needless to say, without strong societal checks and balances, the state's digital surveillance programmes have been developing rapidly in China; in the West, meanwhile, society has always played a role in balancing state adoption of those digital technologies, exerting pressure to regulate and thus restrict their development. AI is no exception. Take facial recognition as an example. Its use by police and city agencies has been officially banned in a growing list of American cities including San Francisco, Boston and Oakland.[65] The EU also seriously considered a blanket ban on its use in early 2020.[66] Even Google CEO Sundar Pichai is in favour of a temporary ban.[67] Needless to say, a blanket ban on AI facial recognition technology in Europe and the United States would give China considerable comparative advantage in the field. Even if the relevant AI technology eventually gains a green light to go ahead in the West, the cautious approach taken by the United States and Europe has already given China years in which to advance its AI programmes and thus get ahead. Not surprisingly, China has already taken the lead in facial recognition technology. This state of affairs reflects a clear difference of ideological values between China and western democratic states.

In 2020, however, this ideological gap seems to have become narrower. At the time of writing, the need to combat the new coronavirus is changing views on mass surveillance. From South Korea to Italy to Israel, national governments have strengthened their mass surveillance operations to track citizen movements in order to combat the spread of the virus.[68] The pandemic has produced a global shift in priorities, favouring the protection of the public interest by preventing the spread of infection at the expense of personal privacy; and if history is anything to go by, this trend may be irreversible. Surveillance programmes designed to combat terrorism, for example, introduced in the wake of 9/11, have remained in place, and the process of strengthening such surveillance continues.[69]

Not surprisingly, China is leading the trend. In China, a mobile application called 'health code' has been introduced by internet giants Tencent and Alibaba to track users' movements in order to monitor individuals who have already been,

[64] Ana Swanson and Paul Mozur, 'US blacklists 28 Chinese entities over abuses in Xinjiang', *New York Times*, 2019, https://www.nytimes.com/2019/10/07/us/politics/us-to-blacklist-28-chinese-entities-over-abuses-in-xinjiang.html, accessed on 1 Oct. 2020.

[65] Other cities where it is banned include San Diego, Berkeley, Somerville, Cambridge and Brookline.

[66] Javier Espinoza and Madhumita Murgia, 'EU backs away from call for blanket ban on facial recognition tech', *Financial Times*, 2020, https://www.ft.com/content/ff798944-4cc6-11ea-95a0-43d18ec715f5, accessed on 1 Oct. 2020.

[67] James Vincent, 'Google favors temporary facial recognition ban as Microsoft pushes back', *The Verge*, 2020, https://www.theverge.com/2020/1/21/21075001/facial-recognition-ban-google-microsoft-eu-sundar-pichai-brad-smith, accessed on 1 Oct. 2020.

[68] Natasha Singer and Sang-Hun Choe, 'As coronavirus surveillance escalates, personal privacy plummets', *New York Times*, 2020, https://www.nytimes.com/2020/03/23/technology/coronavirus-surveillance-tracking-privacy.html?_ga=2.23944185.2134840640.1590334808-69600921.1581161258, accessed on 1 Oct. 2020.

[69] Babu Kurra, 'How 9/11 completely changed surveillance in US', *Wired*, 2011, https://www.wired.com/2011/09/911-surveillance/, accessed on 1 Oct. 2020

or are likely to become, infected with the coronavirus.[70] This application shares data with Chinese security and introduces a three-colour dynamic management system, 'green, yellow and red', based on individuals' movements and whether they have contacted anyone who has been exposed to the virus.[71] A yellow or red code means that the person has a relatively high or high risk of becoming infected, while a green code means low or no risk.[72] There have been mandatory checks of this 'health code' in the entrances of residential areas, offices, public places and public transport, and only those with green codes can gain access. With nearly a billion Chinese people using this application, problems like privacy are clearly a concern.

To be clear, there is discussion in China over data abuse and privacy issues raised by the increasing prominence of AI. Yet most of this discussion focuses on misuse of data by market and private actors rather than state actors. In fact, neither AI nor other digital technologies are chief among the causes of China's problems with data leaks and abuse. Even when it comes to offline information, data have often been misused owing to lack of state regulation and professional conduct. For example, many Chinese phone users regularly get harassing phone calls selling investment opportunities; there have been many reports of property owners' contact information (stored offline) being sold as a key resource in China's profitable information trafficking industry.[73]

The increasing role of AI in accelerating the collection and centralization of private information has only exacerbated this kind of problem. In 2019, for example, a large-scale data breach occurred in a Chinese AI company focusing on security, leading to the leak of 2.56 million user records including highly sensitive private information such as ID numbers, addresses, dates of birth, photos, work units and location information that can identify users.[74] The security incident was a big embarrassment to this company, whose principal business is security protection. In this context, the government is facing pressure to regulate information collection in China.

## Will AI strengthen authoritarian rule by the CCP?

Clearly, AI has already been employed to achieve authoritarian ends. But will it eventually strengthen authoritarian rule in China? If focus is entirely on how AI has been applied to upgrade the regime's surveillance capacity and thus its security apparatus, the answer seems to be yes. However, AI is more than surveil-

[70] Paul Mozur, Raymond Zhong and Aaron Krolik, 'In coronavirus fight, China gives citizens a color code, with red flags', *New York Times*, 2020, https://www.nytimes.com/2020/03/01/business/china-coronavirus-surveillance.html, accessed on 1 Oct. 2020.

[71] Mozur et al., 'In coronavirus fight'.

[72] Mozur et al., 'In coronavirus fight'.

[73] Jing Ma, Yidan Luo, Jiaying You and Wei Wei, 'Diaocha: shuizaigeini boda saorao dianhua?' [Survey: who is giving you harassing calls?], *Beijing News*, 2018, http://www.bjnews.com.cn/finance/2018/08/21/500301.html, accessed on 1 Oct. 2020.

[74] 'Rengongzhineng qiye beibao fasheng daguimo shuju xielou shijian chaoguo 250 wanren de shuju ke bei huoqu' [AI companies are exposed to large-scale data breaches, data of more than 2.5 million people are obtained], CCTV.com, 2019, http://www.ciotimes.com/Information/169764.html, accessed on 1 Oct. 2020.

lance programmes, and its overall impact should be examined more comprehensively. As noted above, this article argues that the key point is how China's AI plans interact with the foundations of the CCP's legitimacy. Given that economic growth, social stability and ideology represent three key sources of legitimacy for the CCP,[75] it is critically important to understand AI's impact in these three areas in order to understand its overall impact on authoritarian rule in China.

Despite the top-level strategic thinking about a global AI race and AI's use in governance programmes, economic factors remain the fundamental driving force of China's bold AI plans. Economic performance has been the primary source of legitimacy in China since the early 1980s, as will be discussed in detail below. By delivering material outcomes to benefit most Chinese people, the CCP manages to win popular support and stay in power. The recent slowdown of the economy, however, has led to serious concerns within the national leadership, and many are counting on the expansion of the high-tech sector to save economic growth. This is the thinking behind the bold national strategies launched by China in high-tech development in areas including big data, 5G and AI. Along the same lines, the development of a booming AI economy is the primary goal of China's AI plans. As the Chinese State Council's 'New Generation AI Development Plan' points out:

> AI has become a new engine of economic development. AI has become the core driving force for a new round of industrial transformation, [which] will … create a new powerful engine, reconstructing production, distribution, exchange, consumption, etc., links in economic activities … China's economic development enters a new normal, deepening the supply side of structural reform task is very arduous, [and China] must accelerate the rapid application of AI, cultivating and expanding AI industries to inject new kinetic energy into China's economic development.[76]

This plan also spells out specific economic goals in a targeted time-frame, aiming to reach an AI industry worth more than 150 billion yuan by 2020, 400 billion yuan by 2025 and 1,000 billion yuan by 2030.[77]

It is very important to note that precisely because a booming AI industry is the primary task, China's AI plans are being put into action by the key driving forces of its economy: market, local and subnational actors, not central agencies in Beijing.[78] The hype surrounding AI in China has spurred great interest in the country's AI plans within the commercial sector, and the provinces have jumped onto the bandwagon with the primary aim of boosting their respective regional AI economies. These actors are primarily driven by market and regional interests; the larger geopolitical picture of the global AI race and US–China competition is often irrelevant in their local and practical contexts.[79] Also, the abovementioned

[75] Zeng, *The Chinese Communist Party's capacity to rule*.
[76] Webster et al., 'Full translation'.
[77] The 2020 target looks unlikely to be met, and because of not only the coronavirus outbreak but also 'capital winter' in 2019 due to the end of a venture capital boom and China's economic slowdown.
[78] Jinghan Zeng, 'China's artificial intelligence innovation: a top-down national command approach?', working paper, 2020.
[79] Zeng, 'China's artificial intelligence innovation: a top-down national command approach?'.

fragmentation of Chinese bureaucracy has further complicated the domestic coordination of AI practices. This means that the Chinese approach towards AI should not be understood as a coherent, nationally concerted effort, and that Beijing's capacity to coordinate the country's AI development should not be exaggerated.[80] Nevertheless, as long as a booming AI industry can be developed to support China's economic growth and thus improve people's living standards, China's work on AI will be a big boost to the CCP's legitimacy.

In comparison, the implications of China's approach to AI for social stability are more complicated. Social stability is another key source of legitimacy for the CCP. In Deng Xiaoping's words, 'in China, the overriding need is for stability'.[81] As discussed above, digital technologies such as AI have empowered the domestic security sector, especially its surveillance capability. Despite being costly, this has strengthened the state's ability to control society. However, repression alone is not sufficient to maintain social stability—not if the state cannot cope with the forthcoming dramatic social changes that AI will bring.

Among other things, the transition to the age of AI will bring about a fundamental restructuring of the workforce. According to the McKinsey Global Institute, AI will replace up to 30 per cent of the current global workforce by 2030.[82] Kaifu Lee argues that the main threat of AI is 'tremendous social disorder and political collapse stemming from widespread unemployment and gaping inequality', in a very short period of time triggering a psychological crisis over the purpose of life and challenging human society's established principle of 'working for a living'.[83] McKinsey's report forecasts that by 2030, between 400 million and 800 million people across the world will need to find jobs in new occupations, and a large proportion of them—up to 100 million or 12 per cent of the 2030 global workforce—will be Chinese, making China the country most strongly affected by the change.[84] The Chinese government's bold AI push will only accelerate this social transformation, and the severe consequences, including massive unemployment, will pose a critical social challenge for the CCP.

Although China has some experience of a shifting workforce, having seen the transition from agriculture to industry during its market reforms of the past few decades, some Chinese scholars argue that the unemployment problem looming this time is quite different. According to Gao Qiqi, the director of the AI and Big Data Index Institute at East China University of Political Science and Law, this round of workforce transition will affect not only peasants and workers but also highly educated intellectuals and white-collar workers, who are much more difficult to 'soothe and [persuade to] accept the status quo'.[85] According to Gao, the

[80] Zeng, 'China's artificial intelligence innovation: a top-down national command approach?'.
[81] Xiaoping Deng, *Selected works of Deng Xiaoping*, vol. 3 (Beijing: Foreign Languages Press, 1994).
[82] McKinsey, *Jobs lost, jobs gained: workforce transitions in a time of automation* (Chicago, New York and London: McKinsey Global Institute, 2017).
[83] Lee, *AI superpowers*.
[84] McKinsey, *Jobs lost, jobs gained*.
[85] Qiqi Gao, 'Zhongguo zai rengongshineng shidai de teshushiming' [China's special mission in the age of AI], *Tansuo yu zhengming* [Exploration and Contention], no. 10, 2017, pp. 49–55.

working class has a long history of exercising their pressure in regard to unemployment and thus the society is experienced to face this kind of pressure. However, when facing the unemployment of intellectuals and the tertiary industry, human society has very little experience. This will be a huge challenge for humanity in the future. Therefore, human society is facing a profound revolution with new historical characteristics.[86]

In short, AI brings not only advanced digital tools to empower the security sector but also dramatic social changes with which the CCP will have to cope. Whether the party can ensure a smooth transition to the age of AI is the key to assessing the impact of the technology on China's social stability and thus the regime's legitimacy.

The third and often neglected pillar of the CCP's legitimacy is ideology, and here AI has the potential to be a game-changer. With the marginalization of communism, ideology is widely considered obsolete in China.[87] This is in fact not the case.[88] The very purpose of a communist party is supposed to be to deliver a communist society. If not, why is it there at all? Despite the CCP's remarkable economic success, its market reform programmes have been questioned by China's leftists, who believe that it is wrong to move society towards a capitalist path. The CCP has been facing a fundamental contradiction between its use of quasi-capitalist economic policies to generate economic success and its commitment to communism and socialism.[89]

This contradiction can be tracked as far back as the early 1980s, if not the late 1970s. At the time, Mao Zedong's decades-long political campaigns had left behind them a failed experiment in communism. The then Soviet-style planned economy—in which the central government had a high level of control over economic activities including production, distribution and allocation—was not just stagnant but broken. While this system ensured a high level of economic equality, it suffered from two key problems: (a) low productivity, as people lacked motivation to work, given that their gain from their labour was not correlated with their input; and (b) low efficiency, as central planners were not able to process and react to information as quickly and efficiently as the market could. In the wider context, many communist regimes, including the Soviet Union, faced the same problem and had to allow the market a bigger role in their economies to address the flaw.

As did China. With Mao's death in 1976, the CCP lost the last source of popular support—the legitimacy deriving from his charisma. In order to save the party, it decided to get rid of the inefficient planned economy and move towards a market one—named 'socialist market economy' to justify the quasi-capitalist reforms under a communist rule.[90] Despite the bumpy transition, this move eventually

[86] Gao, 'Zhongguo zai rengongshineng shidai de teshushiming'.
[87] As Holbig rightly points out, 'in the political science literature on contemporary China, ideology is mostly regarded as a dogmatic straitjacket to market reforms that has been worn out over the years of economic success, an obsolete legacy of the past waiting to be cast off in the course of the country's transition toward capitalism'. See Heike Holbig, 'Ideology after the end of ideology: China and the quest for autocratic legitimation', *Democratization* 20: 1, 2013, pp. 61–81 at p. 61.
[88] Zeng, *The Chinese Communist Party's capacity to rule*.
[89] Zeng, *The Chinese Communist Party's capacity to rule*.
[90] Zeng, *The Chinese Communist Party's capacity to rule*.

created an economic miracle and saved the party. This market economy has not only significantly enhanced efficiency but also unleashed the Chinese people's incentives for production, providing the fundamental basis for the national economic miracle. This Chinese transition happened in a wider international context of the universal decline of the Soviet-style planned economy and a wave of communist regime collapses. In the late 1990s, the wider ideological struggle between communism and capitalism that had underlain the Cold War seemed no longer to exist, and victory belonged to capitalism and the free market.[91]

Nonetheless, China's remarkable economic growth has created many side-effects and exposed the flaws of capitalism. Rapid economic growth has led to fundamental changes in China's economic equality. The previous fairly even wealth distribution under Mao has been replaced by a huge gap between the rich and the poor, leading to serious internal concerns about the CCP's legitimacy.[92] It is ironic to see the success of a communist party in leading quasi-capitalist reforms and creating a high level of economic inequality. Xi Jinping's ideological push on Marxism–Leninism from 2012 onwards should be seen in this context as an initiative undertaken to save the CCP's ideological legitimacy. In short, without these quasi-capitalist market programmes, the regime cannot deliver the material benefits necessary to keep it in power; however, the closer China moves towards capitalism, the bigger the legitimacy crisis the CCP faces. This fundamental contradiction has lain at the core of Chinese politics since the 1980s.

In the age of AI, fulfilling the CCP's socialism commitments *and* delivering economic growth no longer seems to be impossible. AI may provide a solution to the dilemma by fixing the fundamental flaws of the planned economy identified above—low productivity and low efficiency. With the development of AI, future smart machines may achieve a high level of productivity that not only outperforms human labour, but also produces tremendous wealth for human society. In this context, people will no longer need to work for a living. If machines can create sufficient material benefits to satisfy the needs of human society, people's lack of work motivation will not be a problem. As Richard Liu, a leading Chinese internet entrepreneur and founder of Jingdong, has pointed out:

> We in China propose communism. In the past, many people thought communism was completely unattainable. Following [developments in] our technological situation over the past two to three years, however, I suddenly realize that communism can be truly achieved in our generation. As robots can do all your work and have already created enormous wealth, the government can distribute it to everyone. There will be neither rich nor poor people. All companies can be completely nationalized. China will only need one e-commerce company, one sales company, and [communism] can be achieved. No one will go to work for material ends, and most will struggle for spiritual, emotional [things]. Humans can enjoy or do something artistic and philosophical.[93]

[91] Although the rise of BRICS indicates that there is still a debate over to what extent the state should play a role in socio-economic affairs. See Mark Beeson and Jinghan Zeng, 'The BRICS and global governance: China's contradictory role', *Third World Quarterly* 39: 10, 2018, pp. 1962–78.

[92] Zeng, *The Chinese Communist Party's capacity to rule*.

[93] 'Liu Qiangdong: Gongchanzhuyi jiangzai women zhedaishixian gongshi quanbu guoyouhua' [Liu Qiang-

The ideal, utopian world heralded by Liu matches the Marxist vision of a communist society that the CCP claims to be its ultimate goal.[94] With the blessing of modern technology, especially AI, human society may have both tremendous wealth and economic equality. This will fundamentally change the way in which governments and societies operate.

Moreover, super AI has the potential to fix the low efficiency problem of the planned economy when it comes to decision-making. While human central planners—no matter how skilful and knowledgeable they are—can never react more quickly and efficiently to information than the market itself, intelligent computing systems can. Super AI, with greater memory and ability to process and analyse information ever faster, is expected to outperform human intelligence in all areas, including decision-making. A super-intelligent computing system may accurately predict trends in market forces and process information with unprecedented speed to plan ahead. This 'market-based, plan-driven' model, powered by super AI, may prove superior to the conventional market-driven model.

Needless to say, this future vision looks very remote. After all, AI researchers and scientists have not even invented general AI yet, and super AI remains hypothetical. However, the very existence of the discussion is helping the CCP. During the Chinese market reforms mentioned above, the very ideas of 'communism', 'central planning' and 'planned economy' became dated, used only in a derogatory sense. Many liberals consider them to belong to the dustbin of history, while others believe that they are too utopian to be taken seriously. In the context of discussion about AI, when communism is put forward as a scenario of a future world and linked with modern technology, these ideas begin to sound less negative.[95] The 'dated and unrealistic' concepts may sound not so bad or indeed radical at all. In this respect, the discussion offers propaganda value to the CCP's ideological narratives.

## Conclusion

The AI revolution will bring tremendous change to human society. In state governance, it has already provided a digital tool with which to improve not only public services but also surveillance programmes; and now the coronavirus outbreak seems to be accelerating an irreversible trend towards mass surveillance on a global scale. China has opened its arms to embrace this AI revolution. Its authoritarian regime has made bold moves to invest in the technology in order to adapt in

dong: communism will be realized in our generation, all companies will be nationalized], *Sina*, 2017, https://tech.sina.cn/i/gn/2017-08-19/detail-ifykcypq0328162.d.html, accessed on 1 Oct. 2020.

[94] Richard Liu's words sparked considerable controversy—not only because his wealth was seen as incompatible with communism, but also because his comments on the nationalization of all companies and realization of communism were made in a sensitive political climate in which the state was strengthening socialist ideology. At the time, many were quite concerned about the diminishing role of the private sector and entrepreneurs in the Chinese economy.

[95] An opinion piece in *Global Times*, for example, argues that the discussion on communism and future technology provides an opportunity for the Chinese public to better understand and support the realization of communism: Jie Shan, 'Tycoons spark discussion on realization of communism', *Global Times*, 21 Aug. 2017, http://www.globaltimes.cn/content/1062482.shtml.

the age of AI. Its unique socio-political environment and ideological belief have allowed it to become a pioneer in applying AI in governance. While it remains to be seen how this AI-powered security apparatus will evolve, China's practices have shown how digital technology can be used to achieve authoritarian ends.

More importantly, AI offers much more than surveillance programmes. China's AI plan is a full package with the aim of boosting the country's economic growth and raising its global status. As this article discusses, the overall impact of this Chinese approach will be determined not by how AI interacts with the security apparatus but by how it affects the CCP's key sources of legitimacy—in other words, whether it can (a) foster a booming AI economy in the short run, (b) maintain a stable social order during the AI revolution and (c) prove the superiority of China's authoritarian and even communist ideological values in the remote future. All of these are challenging tasks accompanied by considerable risks, and it remains to be seen whether the CCP will be sufficiently resilient to cope with the challenges. As such, the adaptation of authoritarianism in the age of AI is doomed to be complicated.