

Predictive Policing in China: An Authoritarian Dream of Public Security

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Abstract: China's public security forces are employing more and more technology in their push for an 'informatization (信息化)' of their police work. The application of analytical techniques for solving past crimes or preventing future crimes based on big data analysis is thereby a key component of China's approach for technology-led policing. China's holistic policy approach for the purpose of maintaining social stability that is encompassing an ever-growing range of societal issues, the vast investments of its police forces in new technologies and its paramount objective of security, that clearly supersedes *inter alia* concerns of privacy or transparency, may be considered extremely conducive to the establishment of effective predictive policing in China. This paper however argues, that the application of predictive policing in China is heavily flawed as the systemic risks and pitfalls of predictive policing cannot be mitigated but are rather exacerbated by China's approach towards policing and its criminal justice system. It is therefore to be expected that predictive policing in China will mainly be a more refined tool for the selective suppression of already targeted groups by the police and does not substantially reduce crime or increase overall security.

Introduction

The Chinese police are often heavily criticized by the Chinese public for its lack of effectiveness and its deficient work style (Wong 2012, 152-6; Yang 2017, 78). In recent years, however, security forces in China were able to at least partly refute this criticism, when they were repeatedly able to apprehend long-time fugitives and finally bring them to justice. One example is a certain Mr. Ding, who went missing after he allegedly committed a murder in 2001. In early 2017, a facial recognition tool found a matching Mr. Ma on the internet, which led to telecommunication surveillance and finally his arrest in Korla, Xinjiang Province. Reportedly, the murderous Mr. Ding was one of more than 43.000 fugitives arrested by the Chinese police with the help of data technology between March and December 2017 alone (Chen 2019).

The rising use of big data analysis by the police in its investigations is however just a first step of a larger agenda envisioned by the Chinese regime. The final goal is to develop

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instruments and methodologies that can not only ex post enforce the (criminal) law but that are also devices to ultimately predict and prevent crimes. This development gained substantial momentum in China when Xi Jinping announced at a security conference in 2016:

‘We shall attach additional importance to an integrated harmonization and to a reformed public policy, attach additional importance to the democratic rule of law and to technological innovation; we shall raise the socialization, the level of the rule of law, the smartness and the professionalism of our social governance and raise the ability to predict, warn against and prevent any kind of risks. [...] We shall perfect our social governance mechanisms for public security and speedily work on the integration and informatization of the prevention and control system for our public security. - 要更加注重联动融合、开放共治，更加注重民主法治、科技创新，提高社会治理社会化、法治化、智能化、专业化水平，提高预测预警预防各类风险能力。[...]要完善社会治安综合治理体制机制，加快建设立体化、信息化社会治安防控体系.’ (Xi Jinping 2016).

In this speech, Xi outlines a highly integrated framework of public security measures that are not limited to police measures but are rather part of a larger policy approach for which his administration coined the phrase ‘social governance (社会治理)’. Its central goal of ‘maintaining stability (维稳)’ is neither new nor innovative as it has been at the heart of China’s domestic policies since the Hu Jintao administration (2003-2013) under the term of ‘social management (社会管理)’, which according to Piekie (2012, 159-60) aligned itself with corporatist ideas of indirect regulation while still maintaining a socialist approach that entails the feasibility of social engineering. The gradual shift towards more ‘governance’ instead of ‘management’ under XI Jinping widened the scope of active government involvement again (Wei 2019) and thereby also broadened the regime’s demand for information through extensive surveillance. The most notorious example of this overarching policy approach is the establishment of China’s Social Credit System (社会信用体系), which is meant to process a plethora of data from different areas to assess the trustworthiness of persons and corporations for the purpose of enhancing their obedience to legal and even ethical norms (Chen, Cheung 2014).

The recent efforts of digitalization and automatization in the prevention of any kind of deviance, as seen in the Social Credit System, are manifestations of a larger trajectory

in China's public security. More and more areas are considered relevant issues for maintaining social stability in China, so that not only the security forces as such were constantly growing in size and importance, but this also means that an ever-increasing number of policy fields are drawn into what Wang and Minzer (2015, 357) describe as a 'pluralization of security work'. This expansion of competence and workload is met by the Chinese police by a serious push towards 'informatization of policing (警务信息化)', which is generally describing the comprehensive use of information technologies in all areas of the police work and the collection and processing of high volumes of data (Schwarck 2018, 9-11; Zheng 2019, 15-6). Given these developments, China may be in the position to establish a highly efficient system of predictive policing.

Conceptualizations, problematizations and definitions of predictive policing in the English-language literature are mainly based on a handful of trailblazing examples that were set up in the US. These analyses are most often highly contextualized in that the specific predictive policing tool as well as the police culture and approach towards policing of the respective police departments, especially regarding transparency and potential racial bias, are taken into account and discussed from the perspective of the US' constitutional order (Hunt et al. 2014, Saunders et al. 2016, Selbst 2017, Ferguson 2017b, Griffard 2019). The most prevalent definition can thereby probably be found in the RAND Corporation's early study on the matter, which defines predictive policing as the 'application of analytical techniques—particularly quantitative techniques—to identify likely targets for police intervention and prevent crime or solve past crimes by making statistical predictions' (Perry et al. 2013, XIII). A more recent definition was proposed by Meijer and Wessels, who based their analysis on a literature review and summarize predictive policing as 'the collection and analysis of data about previous crimes for identification and statistical prediction of individuals or geospatial areas with an increased probability of criminal activity to help to develop policing intervention and prevention strategies and tactics' (2019, 1037). While none of these definitions included observations of the Chinese efforts in predictive policing and may not be entirely apt to encompass the Chinese approaches in this field, the more abstract considerations presented in this English-language scholarship may still be particularly instructive in assessing the possibility for effective predictive policing in China. A core question of this paper is therefore, if China can overcome the problems and drawbacks frequently discussed in the context of predictive policing in general. Particularly, China's 'pluralized' approach to security work and the apparent ability of its police to use a wide array of data as the 'prediction stage' of the criminal procedure in China is not limited by law (Pei Wei 2018, 56) may have the potential to bring forth a more holistic predictive policing regime that not only relies on previous

crimes to forecast future crimes but encompasses many issues that could lead to the occurrence of crime. Such an approach would then be very well equipped to mitigate the problem of not clearly distinguishing correlation and causation, which Chan and Bennet Moses describe as the latent fallacy of Big Data analysis in criminology (2016, 34). China's broad perspective on social stability could make the surveillance of a broad range of (social) issues operational for its version of predictive policing and thereby could avoid what Bennet Moses and Chan more specifically criticize as an 'exclusive focus on crime prevention' (2018, 815), which may counterproductively block out other factors that influence public order as the overarching goal of effective policing (Dixon 2005, 17-8). Even more importantly, China's police may have broad access to any kind of data without substantial restrictions concerning due process standards (generally on this issue in China, e.g. Nesossi 2019, 495-6), which, from solely a public security perspective, would allow a far more effective form of data-led policing. Schwarck therefore argues that China will create a 'public security apparatus more adept at reading the causes of criminality and disorder, and responding accordingly' (2018, 19). This paper however argues that China's efforts to build-up its capacities in predictive policing are systemically flawed. Success in this area is not only depended on the volume of accessible data and the installed computing power, but it hinges also on the quality of the available data (Ferguson 2017b, 1145-50) and the ability to critically evaluate procedures and outcomes without fixed expectations regarding the results (Bennet Moses, Chan 2018, 815-7). While police data in general appears to be already inherently biased (Joh 2017, 295-302), Chinese crime data is also heavily influenced by political considerations (Xu 2018, 166-170) and even the underlying police dossiers on criminal cases may very easily not reflect the actual situation (Mou 2017, 85). Using this kind of data as a basis for a predictive model certainly cannot safeguard accurate forecasting of crime that guides police strategies and tactics. Additionally, legal oversight and scrutiny of police operations are notoriously weak in China (Schwarck 2018, 20), intra-departmental conflicts regarding the value of computerized data analysis for the policing strategy and operational tactics (Guan, Sun 2020, 75-6) and the enormous propaganda value of predictive policing for the regime's legitimacy may render any efforts to critically evaluate China's use of big data in its policing moot and futile.

While there is still no nationwide program or concept for predictive policing in China, there are however local projects that make use of analytical data technology (e.g. in Zhongshan, Guangzhou and Hangzhou, Zhejiang) and several specific crimes (e.g. drug-related crimes and telecommunication fraud) are targeted by predictive policing measures in China. Additionally, the pervasive surveillance of the entire (Muslim) population in Xinjiang produces high volumes of data that are used for operational

purposes in China's 'People's War against Terror', which is at times also described as predictive policing (Human Rights Watch 2019). In the following, this article will give an overview of ongoing predictive policing programs and related technology- and data-driven undertakings of the Chinese security apparatus in the context of China's comprehensive approach towards maintaining order. Based on these observations, China's potential for an effective predictive policing will be analyzed by scrutinizing the availability of possible solutions for the inherent flaws of predictive policing that are frequently conceptualized in the existing English-language literature on the matter.

Technology, Big Data and the Chinese Police

The promise of faster, more cost-effective and efficient policing by using technology (Brayne 2017, 981-2; Ferguson 2017a, 31-3) is certainly also a driving force for the establishment of predictive policing tools in China. This Chapter outlines early and ongoing undertakings of the Chinese police to integrate information and communications technologies in their operations and develop strategies that are based on Big data analysis. While not every project in this field in China can be mentioned here, the aim of the following discussion is to illustrate a trajectory towards a comprehensive and nationwide solution for a technology-aided or even technology-led policing that would fundamentally change police practices in China and is ultimately conducive to a shift from reactive to predictive policing.

The growth in size and importance of the Chinese public security apparatus in at least the last fifteen years (Wang, Minzer 2015, 342) was accompanied by a substantial investment in modern technologies and 'the emergence of the Ministry of Public Security (MPS) as a powerhouse in computerized surveillance' (Schwarck 2018, 21). The extensive employment of data and technology by the Chinese police is described by several interconnected terms, which use a slightly shifting focus from 'intelligence-led [in the sense of effectively using information] policing (情报指导警务)' to an 'informatization [in the sense of using information technologies] of policing (警务信息化)' and finally an integrated notion of 'intelligent policing (智慧警务)'. The latter approach is fairly comprehensively outlined in a normative document jointly issued by the Central Committee of the Chinese Communist Party and the State Council in 2015 titled 'Opinions on the further development of a prevention and control system of public security':²

2 中共中央办公厅、国务院办公厅印发《关于加强社会治安防控体系建设的意见》, 13-04-2015, <http://politics.people.com.cn/n/2015/0414/c1001-26839083.html> (Accessed 23-02-20).

‘The informatization of public security prevention and control will be incorporated in the overall plan for the development of intelligent cities. [We will make] ample use of technologies such as the internet of a new age, the internet of things, Big Data, cloud computing and systems for smart sensing, remote sensing, satellite positioning and geographic information. [We will] innovate tools for public security prevention and control, and thusly raise the level of digitalization, interconnectedness and smartness of the public security management and create a number of organically fused model projects. - 将社会治安防控信息化纳入智慧城市建设总体规划，充分运用新一代互联网、物联网、大数据、云计算和智能传感、遥感、卫星定位、地理信息系统等技术，创新社会治安防控手段，提升公共安全管理数字化、网络化、智能化水平，打造一批有机融合的示范工程。’

This documents also puts forward a vision for the ultimate purpose of this build-up of the Chinese police’s technological arsenal by explicitly pointing towards predictive policing:

‘[We will] strengthen the deeply coordinated use of information resources and make ample use of modern technologies, so that our abilities of automated prevention and suppression of crime are heightened. - 强化信息资源深度整合应用，充分运用现代信息技术，增强主动预防和打击犯罪的能力。’

When in 2016 Meng Jianzhu still headed the Commission for Politics and Law (政法委员会) of the Chinese Communist Party (CCP), which is the central oversight organ in all legal matters of the one-party state (Fu 2013, 76-88), he already lined out more specific notions of predictive policing:

‘We have to improve our use of smart tools and in real-time analyze, process and unearth from Big Data behavioral trajectories of criminal suspects, thereby finding crime patterns and trends so that we push for a transformation from retracing after the fact towards predicting, forewarning and preventing before the fact. - 我们要善于运用智能化手段，对大数据进行分析、处理、挖掘，实时关联犯罪嫌疑人的行为轨迹，从中找到犯罪规律或趋势，推动由事后追溯向事前预测预警预防转变。’ (Meng Jianzhu 2016, 14).

Meng's successor since 2017 and former Minister of Public Security, Guo Shengkun, further elaborated in 2019 on the new focus of the Chinese security forces on predictive and preventive measures and specifically pointed towards three areas that should receive the most vigilant attention:

‘Prediction, forewarning and prevention shall be a core task [of the *zhengfa*-Organs (i.e. courts, procuratorates, police, supervision commissions)] and [they shall] conscientiously work at bringing to light the roots and circumstances of serious dangers so that their realization can be precisely predicted and meticulously warned against and accurately prevented. [They shall] focus on the hidden dangers of prominent risks, take correct measures and firmly be on guard against, dissolve and handle every kind of risk in the field of political security violent terrorism and social stability. - 要把预测预警预防作为根本任务，切实做到对重大风险底数清、情况明，实现精确预测、精细预警、精准预防。要聚焦突出风险隐患，精准施策，坚决防范化解处置各类政治安全风险、暴力恐怖风险、社会稳定风险.’ (Guo Shengkun 2019).

While Guo also sees predictive policing as an instrument for maintaining stability, he additionally aligns this new form of policing with China's authoritarian notion of public security by singling out political crimes and terrorism as the most important targets of predictive policing in China. As crimes against the political system as defined by the Chinese criminal law are regularly used to convict human rights lawyers (CHRLCG 2016) or political dissidents like the late Liu Xiaobo and China's 'People's War on Terror' is a highly discriminatory criminal justice campaign that overwhelmingly targets its Muslim minority (Sprick 2020), Guo reaffirms that China will use its emerging capabilities of predictive policing against certain groups of people and not as a general tool for the reduction of crime.

China Behind the Golden Shield in the Safe City and Under Sharp Eyes

The implementation of new policies in China is frequently introduced by a catchphrase that was coined by a leading politician or during a related working group meeting. In the field of public security and its technological turn, the three most important national policies are called 'Golden Shield Project (金盾工程)', 'Safe City (平安城市)' and 'Sharp Eyes Project (雪亮工程)', which will be exemplified here and illustrate some of China's most ambitious public security reform projects of the last 30 years. These undertakings mainly aim at binding together previously separate areas of public security

and thereby also create a broad information basis that may in the future be employed for a nationwide predictive policing database.

Probably the best-known policy with regard to the digitalization of the Chinese police is the Golden Shield Project, which is mostly - but not entirely accurately - associated with China's national firewall and its censorship of the Internet (Bolsover 2017, 9-11). Internet safety and security was just one of many objectives this project wanted to achieve. Its overall approach was to find policing solutions for a more and more digitalized world, that is policing the emerging social realms of digital networks as well as using the digitalization of relevant information and its conversion in machine-readable data. The most fundamental aim of the Golden Shield Project was to establish an operational data hub that integrates local, municipal, provincial and national networks of already existing security-related databases and equip those agencies, which were still disconnected either from digitally generating or retrieving relevant data with appropriate technological solutions (Li Runsen 2002, 7-11). The Golden Shield Project was originally designed to have two phases (2003-2006 and 2008-2015), but an additional third phase started in 2014 with a further investment of 10 Billion RMB (ca. 1.3 Billion Euro) and the goal to streamline and reform existing processes and thusly establishing a comprehensive national network (Wan Yanan 2020). Ideally, the Golden Shield Project was meant to establish a coherent platform that provides public security organs with automatic analysis of retained bulk data and live information from video or electronic surveillance that could support the police in on-going investigations and additionally monitoring the general security situation in real-time (Schwarck 2018, 11). While the data collection and management envisioned by the Golden Shield Project would thereby have been extremely conducive to the development of predictive policing in China, the necessity of an enormous subsequent investment in this project indicates substantial problems in the implementation of this policy. A section chief for technology at the Hangzhou police department recently summarized his experiences with the Golden Shield Project and elaborated on the existing problems, which – apart from serious trouble with the bandwidth capacity of his network – he primarily identified as deficiencies in the still existing data walls between different administrative units and lack of cooperation in data sharing and data use, many redundancies in a still too small data set, deficient search queries, too many platforms - as there were 8 databases and 23 different networks with different data sets - and too little expertise and knowledge with regard to data tools among the police officers (Zou Xinyi 2010, 44-5). While solely technical problems may be easily solved by further investments, an administrative culture that is predominantly occupied with retaining control over its domain may be a fairly unsurmountable obstacle. One of the 8 databases to be

integrated under the Golden Shield is the China Crime Information Center Database (全国违法犯罪信息中心查询索引库), which is modeled after the FBI's National Crime Information Center. While information on this database is scarce, comprehensive data from criminal records would certainly be essential to its quality and operability. Currently however, there is no unified system for criminal records, but these records are governed by a plethora of different local normative documents, doubtlessly producing a highly inconsistent data set of this quintessential information on criminal offenders (Yu Zhigang 2019, 73-5). The Golden Shield Project may one day become the backbone of China's predictive policing, but its current state appears to be not yet feasible for such an endeavor.

Two other important projects in the field of public security are the 'Safe City (平安城市)' Project and the 'Sharp Eyes Project (雪亮工程)'. Both projects use mass (video) surveillance measures for the purpose of constantly monitoring security- and safety-related aspects. Safe City started on an experimental basis in 2005 and has expanded since into almost every major municipality in China. Its main goal is to extensively use video surveillance technology for different aspects of public security and safety. Criminal investigation and crime prevention are just one issue of many other aspects covered by this policy such as traffic control and management, emergency response operations or even safe production by surveilling construction sites. (Deng Ye 2016, Wan Yanan 2020). Another feature of Safe City is the integration of the Internet of Things into the surveillance grid so that the public security forces have even more access by using e.g. privately installed surveillance cameras or car-mounted IP-cameras (Huawei 2015). Similarly to the Safe City, the Sharp Eyes Project, which was launched in 2015 and is currently implemented in 48 areas, is predominantly build on video surveillance technology but is not so much aiming at urban areas and instead focusses on covering the smaller cities and rural China. Additionally, and again just like Safe City, the Sharp Eyes Project uses mobile networks, cloud computing, centralized command centers and handheld devices. Under the Sharp Eyes Project the users of the latter are however not public security officers but mostly ordinary citizens who are using an app on their mobile devices to report on anything suspicious that they spotted on their television set, which can be tuned to the surveillance feed in their neighborhood, or that they encountered outside of their own home (Gao Guojun 2018, 125-6. Rudolph 2019). While oscillating between promoting neighborhood watches and facilitating community suspicion and denunciation, the Sharp Eyes Project allows mass surveillance with very little human resources and only requires police forces, if their dispatch is absolutely necessary, so that technology here is not the least seen as a cost-efficient tool for effective policing. Furthermore, the Sharp Eyes Project clearly demonstrates that

privacy concerns are hardly relevant in the area of public security in China, so that any future form of predictive policing will certainly not significantly be hampered by deliberations of this kind but can rather freely be built on a huge amount of surveillance data.

Big Data and Experiments of Predictive Policing

In the absence of a national predictive policing scheme in China, the recent establishment and operation of some local experimentation in this field are the focus of this section. Not every aspect discussed here strictly falls within the definitions of predictive poling used above, but these local projects are either advertised as predictive policing or must be understood as building blocks for a future predictive policing system.

One regional hotspot for using Big Data and Predictive Policing tools is the province of Zhejiang and especially its capital Hangzhou. By quantitatively analyzing date from e.g. police intelligence or occurrence rates of certain cases, Zhejiang is committed to establish a ‘Public Security Assessment and Warning (社会治安评估预警)’ scheme so that hidden public security risks are recognized and prevented (Ministry of Public Security 2016). For this purpose, Zhejiang is building an enormous database, which in late 2019 already consisted of more than 600 different data categories, held more than 1.6 Trillion data points, and is constantly fed by almost 250 cloud-based services across the province so that the central data center of the police daily has to compile traffic of 1 Billion real-time data points. An early test of the new technologies employed by the Zhejiang security forces came when its capital Hangzhou hosted the G20 summit in 2016. This Police Cloud (警务云), that was in operation here, can be used to retrieve a wide array of personal data that can be linked to the national identification number (身份证号码), which according to Human Rights Watch includes medical records, delivery histories, hotel stays or travelling companions (HRW 2017). What appeared to Western commentators as an utterly disproportionate show of force during the G20 summit in Hangzhou and thus painted a bleak picture of personal freedoms (Yoon 2016) was portrayed by Chinese officials as a full-blown success of its ‘Intelligent Public Security (智慧公安)’ based on its Big Data capabilities (Zhejiang Police Department 2019). One core objective of the G20 operation was evidently keeping away petitioners, who would have intended to use an internationalized stage to voice their dissent and bring forward their grievances about the regime’s many injustices (RFI 2016). Later court cases subsequently showed that the police had stopped and fined many potential petitioners before they could have staged their protest in Hangzhou (e.g. Hefei Intermediate Court 2018), so that, from the perspective of the Chinese authorities, the

predictive and preventing policing tactics must be considered successful. This example however also highlights that the aforementioned purpose of predictive policing in China, namely preventing 'political crimes' and 'maintaining social stability', has to be understood as an extremely effective tool for the suppression of dissidents in China.

A particularly hot topic in China is the crime of telecommunication fraud, of which more than 200.000 cases were registered in 2019 alone (Beijing Daily 2019). Subsequently, the Ministry of Public Security orchestrated a criminal justice campaign titled 'Cloud Sword (云剑)' that targeted this particular crime and once again it was the province of Zhejiang, which was particularly successful, so that in this province alone 160 Million RMB in fraudulently acquired assets were seized until December 2019 (Zhu Ziyang 2019). Zhejiang had established specific models for the prediction and prevention of telecommunication fraud on municipal levels that involves strict surveillance of any suspicious online or telecommunication activities and close coordination down to the local police station so that real-time monitoring of fraudulent activities and immediate warnings of potential victims seems to be possible (Wang Shujing 2019). The police forces thereby also rely on the active participation of private companies such as the Zhejiang-based Alibaba Group for e.g. the identification of possible suspects (Wu Yuewen 2019, 93). A similar approach in targeting telecommunication fraud is reported from the city of Zhongshan in Guangdong province, which is another area for experimental predictive policing measures. In one instance, the Zhongshan police were able to warn a potential victim and apprehend the corresponding suspect in less than four hours after the attempted fraud commenced. A telephone card, flagged for possible connections with drug-related crimes and mafia-related money laundering, came on the radar of the automated system when the cardholder had sent a text message to a Mrs. Zheng directing her to a website that asked *inter alia* for her national identification and banking card numbers. Because Mrs. Zheng could not be reached by phone at the time, police officers from the local station were immediately dispatched and arrived before she disclosed her sensitive information. Within just the year 2018, the Zhongshan police had placed 9120 warning calls of this kind (Mai Wanhua 2019, 23) in a city of roughly 3 Million people which again illustrates the enormous dimensions of telecommunication fraud in China and also highlights the vast extent of this predictive policing operation. In this instance, actual security concerns of the population are the driving force of predictive policing in China, while privacy issues are much less relevant in this mass surveillance effort, which can be seen by the fact that the Zhongshan police intercepted more than 13000 telephone calls and more than 30000 text messages in 2017 alone (Zhongshan Daily 2018).

The Zhongshan police force is also using another rather innovative method for its version of predictive policing as it employs wastewater analysis in its fight against drug crimes. In collaboration with Peking University, Zhongshan was the first municipality in China to systematically test sewage water across the city since 2017 and started to build a data analysis model that also included water and electricity use for the purpose of identifying hot spots for drug crimes. Until 2019, this approach led to the arrest of 341 suspects in 45 different criminal investigations (Zhongshan Daily 2018). When one particular district in Zhongshan produced suspicious data in its electricity use, the wastewater analysis however falsified drug-related crimes so that the Zhongshan then successfully shifted its focus and found a hotspot for telecommunication fraud (Zheng Zehui 2019, 18). Such a nuanced approach is however not always maintained as the Zhongshan police force also followed up on its wastewater analysis by simply conducting hair-sample tests of 22530 persons working in the local nightlife industry, which produced 356 positive tests for substance abuse and led to the arrest of 17 people (Mai Wanhua 2019, 24). The European Monitoring Centre for Drugs and Drug Addiction recently commissioned a study which assessed the applicability and potential advantages of ‘wastewater-based epidemiology’ (WBE) and found it highly useful for determining and addressing public health issues, while the study also ascertained that the use of WBE for law enforcement purposes should be primarily as a tool to evaluate its effectiveness and warned against ‘ethical risks’ of targeting certain communities (EMCDDA 2020, 7-9). The latter concerns were obviously not relevant in Zhongshan as exhibited by targeting an entire group of people, which was clearly intended to boost the perceived effectiveness of its innovative methods.

Reports on predictive policing in China by Western commentators mainly focus on China’s pervasive mass surveillance campaign against its Muslim population in Xinjiang (Yuan Yang 2019). As mentioned above, this correlates with many assertions from China that the fight against terrorism is one of the main scopes of application for high-tech policing so that future terrorist attacks may be predicted and prevented (e.g. Guo 2019). Information on the on-going operation in Xinjiang is however scarce and rather deal with conceptual issues of terrorism in the crosshair of predictive policing methods (e.g. Li Zhiheng, Yao Bo 2019). While the true predictive facilities of the Chinese authorities are unclear, the scope and intrusiveness of its surveillance measures were *inter alia* exposed by the China Cables of the International Consortium of Investigative Journalists (ICIJ) or related reports from Human Rights Watch (HRW). The ICIJ revealed, e.g., that more than 40.000 users of a file-sharing app (Zapya – 快牙) who used the app to share religious content were further investigated under the ominous ‘de-extremization (去极端化)’ policy that could easily lead to ‘assisted or

placed education 帮教、安置教育’ or the like in one of China’s internment camps (Alecci 2019). HRW was also able to obtain a police app that connects to the Integrated Joint Operations Platform (一体化联合作战平台), which is a core infrastructure of the mass surveillance in Xinjiang. Reverse engineering of said app showed that Chinese authorities are collecting a huge amount of personal data that even encompass aspects like ‘not socializing with the neighbors, often avoiding using the front door’, it appears to flag certain targets (persons), follows their movement and even may dispatch the police if these targets enter certain geographies (HRW 2019). While the underlying algorithms and their more nuanced predictive capabilities remain unclear, it is evident that China’s security forces enhanced their real-time response skills that are based on data collected through mass surveillance.

Systemic Pitfalls for Predictive Policing in China

China is doubtlessly heavily investing in its predictive policing capabilities. This follows a well-established implementation course that entails the highest political support and declarations of intent, which feed into local trials and experimentation and will probably lead up to a galvanized national strategy. Predictive Policing fits very well into China’s greater scheme of using technology to update and bolster its approach of social governance and public security. China’s authoritarian regime may be considered extremely conducive to the establishment of predictive policing models as its paramount objective of security will always trump any concerns regarding privacy issues, due process or an unduly amount of false-positives. Additionally, the use of presumably unbiased technology may support the regime’s recent efforts to raise its legitimacy by suppressing corruptive practices of its administration. This chapter will however discuss substantial and systemic flaws and risks which predictive policing may face in China. Its underlying data cannot be trusted and effective as well as appropriate police operations and interventions that sustainably reduce crime and not only target certain groups may be almost impossible to establish. Especially, the imperative of constant evaluation of the established predictive policing mechanisms, which has to be based on critical reflection, transparency and the willingness to engage in an open-ended process without fixed expectations regarding the results (Ferguson 2017b, 1165-80), may not be an approach available to the Chinese system.

Predictive Policing and Chinese Police Data

An old saying in information technologies is ‘garbage in, garbage out’ and describes the limitation of computerized data management systems, which are highly dependent on the quality of their input. In her seminal work, O’Neill reiterates the validity of this

notion for automated scoring systems and highlights their affinity to error (2016, 150-1), which may then sustain feedback loops that lock in doubtful decisions and even exponentiate their harmful consequences as the first erroneous decision may trigger a cascade of additional errors in interlinked areas that the respective system also monitors (Robinson 2017, 320-2). In the field of predictive policing, Bennet Moses and Chan point out that 'predictions can accordingly become self-affirming' (2018, 810) as more policing of certain areas or communities produces more, corresponding data that is fed into the machine. Barocas and Selbst argue that 'data mining can reproduce existing patterns of discrimination, inherit the prejudice of prior decision-makers, or simply reflect the widespread biases that persist in society' (2016, 674). Effective and fair predictive policing therefore requires high quality data and data management schemes that are unreservedly acknowledging their errors and putting a lot of effort in addressing and mitigating these errors (Ferguson 2017b, 1151-2).

If China currently holds or is able to produce such a data set in the future is highly questionable. Not the least because official crime data in China is a matter of highest political sensitivity. From the perspective of the central government, crime rates are not only an issue discussed in terms of safety and security but also pose a threat to the regime's legitimacy and undermine, in the words of Dutton and Xu, its 'socialist face' (2005, 125). Additionally, Xu Jianhua was able to show that crime statistics are seriously manipulated locally as the number of reported crimes are part of the police's evaluation so that newly established police commissioners first artificially inflated their local crime rates so that they could then show their success by a distinctive downward trend in reported crime (2018, 166-9). Furthermore, in an empirical study, Mou Yu demonstrated that the police in China can easily manipulate its dossiers, which are hardly ever successfully challenged in court, and thus make them fit their version of the truth which may 'relate to stereotyping, intuition or imagination in specific circumstances' and is predominantly 'based upon the probability of conviction (2017, 77). The lack of reliable official data is also frequently acknowledged by Chinese criminologists, who additionally encounter many difficulties collecting their own data and conducting their research in China (Zhang 2013, 171-77). Quite tellingly, it is therefore not surprising that a recent study published in Chinese in a Chinese journal by Chinese academics on a possible algorithm for crime prediction is using data from Chicago and not from any Chinese locality (Tang, Shi, Zhang 2018, 223).

It may be possible that the high volume of data collected through nearly ubiquitous surveillance by the police could create an extremely valuable data set for predictive policing in China. But as truly raw data generally does not exist and given the

aforementioned problems in the collection, production and interpretation of crime-related data in China, it is highly doubtful that a database can be constructed in China that allows for an effective (in the sense of crime reducing) and fair (in the sense of minimizing errors) predictive policing in the foreseeable future. This is not to say that China will not be able to establish its version of predictive policing, but this will rather perpetuate and probably even exponentiate its already highly problematic policing practices as discussed below.

Predictive Policing and Chinese Police Operation

Putting predictive policing into practice does not only involve data management and coding predictive algorithms, but it is also a question of the appropriate police operation. Even if a specific crime or crime pattern is predicted for a certain area or yet more advanced, if a specific person is identified as a likely criminal offender for certain crimes about to happen, this does not necessarily entail that the right police intervention is also available (Bennet Moses, Chan 2016, 813). Simple police deployment may be considered the prime intervention to prevent the crime and thereby satisfy the system's own logic so that 'the metrics being established may be consistent with the technology, but not the ultimate goal of crime reduction' (Ferguson 2017b, 1176). Problem-oriented responses may in contrast more comprehensively target the predicted crime and its root causes, but this requires extremely adaptive police tactics that proficiently use its predictive tools in the sense of understanding the technology's mechanisms and critically reflect on its analytical output (Bennet Moses, Chan 2016, 814-5).

The complexities of Big Data and predictive policing technologies are a huge stumbling block for their implementation in China as elsewhere in the world. Introducing data-driven policing and intelligence-led police work requires not only investments into the equipment but also in the training of the new and already existing police force. Additionally, the Chinese police are already struggling with the implementation of new policing tactics (Wang, Zhao 2016, 534) as many police officers are already highly frustrated with their ever changing role and duties over the last 40 years of criminal justice reform, the high pressure from above and their very limited influence on the course of police reforms (Scoggins, O'Brien 2016, 227-8). A common theme in the Chinese literature on the core problems of the implementation of Big Data approaches to contemporary policing during the last ten years is therefore the assertion that neither beat cops nor the commanding officers had sufficient data literacy (Zou Xinyi 2010, 44-5, Wu Zhihui et al. 2017, 103; Lin Guan, Hao Sun 2020, 75-6). This gives also rise to the problem that existing command structures may perceive themselves challenged

by the new technology or the newly established operators and would try to retain full control over the actual police operation (Lin Guan, Hao Sun 2020, 76). This kind of internal competition can also be seen in the field of data sharing. While this issue was among the core objectives since the implementation of the Golden Shield Project in 2003, corresponding problems have not yet disappeared so that data sharing among different levels of the police hierarchy as well as among the public security apparatus and other administrative organs is still highly deficient (Wu Zhiui et al. 2017, 103; Lin Guan, Hao Sun 2020, 76).

As mentioned above, the Chinese police are heavily guided by its constant evaluation and the establishment of specific predictive policing metrics will certainly have significant impact on police operation. The two most common police tactics in China are still its socialist version of community policing (Wong 2001) and campaign-style policing that leads to 'severe and swift punishments' by identifying the targets of the campaign, by accelerating the responses and by bolstering the campaign with a propaganda blitz (Trevaskes 2010, 64-6). Hot-spot policing as the most accepted police tactic for geographical predictive policing does however not belong to the arsenal of the Chinese police, because, according to Wang and Zhao, there are simply no significant crime hot spots in China (2016, 532-3). Predictive policing in general is still far from being a ubiquitous panacea but very selectively and discretionary employed by the police (Joh 2016, 30-1), so that China's approach of targeting specific crimes as seen in its current experiments and respective political statements will be the prevailing practice for the foreseeable future. Terrorism and political crimes are repeatedly identified targets of China's predictive policing and thereby complement its campaign-style police operation in these areas, so that this new technology is most certainly used further suppress dissent in China (HRW 2017). Furthermore, in the case of drug-related crimes, China's use of WBE will predict crimes and the police will have to prevent (those) crimes in order to meet the corresponding evaluation metrics, even if this entails a campaign-style drug testing operation of an entire community as seen in Zhongshan. Ticking the boxes of the predictive policing tool and thereby fulfilling the requirement of effectively using the new technology will be more important than crime reduction. This effect will be further exacerbated as the Chinese police do generally not engage in problem-oriented policing (Wang, Zhao 2016, 532), which would make use of the WBE in also addressing drug problems as a public health issue and thereby respond to the underlying root problem of drug-related crimes. While the predictive policing against telecommunication fraud by the Chinese police should also be understood as campaign-style policing, this operation demonstrates that the seemingly unfettered surveillance of private (telecommunication) data of its citizens can be extremely helpful

in predicting and preventing this kind of crime. From this perspective, China would be in the position to very effectively employ predictive policing methods at least in areas, where data flows can be monitored and where the flow of data is part of the criminal activity.

Policing Predictive Policing in China

The single most important issue stressed in many publications on predictive policing is the need to establish rigorous evaluation mechanisms and clarify accountability for technology-led police operations. This is especially true as the experiences in the US with predictive policing so far produced inconclusive results regarding their effectiveness (Bennet Moses, Chan 2016, 815-6) and are easily corrupted by ‘self-reinforcing or self-fulfilling predictions’ (Ferguson 2017b, 1178). There may also be the tendency that the high publicity value of establishing ‘smart policing’ based on modern technology and Big Data analysis, that will advance the efficiency and cost-effectiveness of the police force, may cloud the judgement of decision-makers and prevents critical reflection and evaluation of predictive policing (Ferguson 2017a, 28-31). Additionally, using predictive policing tools may ‘outsource aspects of the decision-making process, and thus responsibility and accountability for the decision itself’ (Bennet Moses, Chan 2016, 817). The machine could be easily blamed for every fraught or erroneous police intervention without holding the police itself accountable. Taking accountability, however, requires transparency regarding the methodology of the prediction and its impact on the corresponding police operation as well as technological expertise of at least the commanding officers, who need to fully understand the computed output of the prediction tool (Ferguson 2017, 1166-9).

Full accountability and transparency for internal police mechanism is not only in China hard to achieve. Chinese police culture is however extremely averse to external or internal oversight. The Chinese police law (Art. 42) establishes the procuratorate as the primary supervisory body of the police in China, but ‘in reality, the prosecutor and the police are closely aligned and collaborate with one another’ (Mou Yu 2017, 83) and the police are generally accepted as being more powerful than the procuratorate or even the courts in China (Xu Jianhua 2013, 1110). Given the nature of predictive policing as a tool to inform police tactics and operations, internal oversight would appear to be more suitable to create accountability. While such a system exists in China, Wong provides a disastrous summary of its efficacy as it is conducted ‘most of the time [...] in a very superficial and perfunctory manner’ and the respective inspection teams are ‘grossly understaffed, undertrained, and inadequately resourced’ (2013, 333). Such a weak internal police supervision is described as still in its nascent state and it has certainly

not yet the ability to effectively reign in a public security apparatus, that is built on a culture of defending the socialist revolution against its enemies (Ma Yue 2008, 50-1). This gross lack of accountability may even fuel the use of computerized decision-making processes in police operations as the technology can be portrayed as unbiased and incorruptible. The employment of predictive policing tools may be propagandized as a means to reduce human error or misconduct, which then again positively reflects on the police's and by association the regime's legitimacy. A critical evaluation of predictive policing would be counterproductive to this particular cause. Given the fact, that the technological expertise in the commanding levels of the Chinese police, as mentioned above, additionally appears to be still highly deficient, a nuanced supervision of predictive policing tools in China appears illusionary. Predictive policing can therefore easily become more of a propaganda instrument than a means for crime reduction.

Conclusion

China's future in predictive policing is fraught with substantial risks regarding its effectiveness in reducing crime. In technologically upgrading its system of social governance in general and its public security apparatus in particular, the Chinese regime envisions a boost in legitimacy as seemingly unbiased and incorruptible systems promise fairness and justice within the allowed parameters of the one-party state. The propagandistic value of predictive policing may however be the single most important end possibly even unsurmountable obstacle in establishing an effective crime reducing system of this kind in China. The Chinese security apparatus appears systemically unfit to critically evaluate, acknowledge error, re-adjust methodologies and adapt responses, which is an indispensable process in making predictive policing work. If predictive policing is however not only seen as a tool for the general reduction of crime but used as an instrument to further target specific (dissident) groups, China may be able to successfully employ Big Data technology for this particular objective. Furthermore, while actual crime data in China is significantly flawed so that systemic crime predictions seem at the moment impossible, China's huge surveillance operations produce an enormous flow of data that could be tapped into for specific campaign-style police interventions as seen in the fight against telecommunication fraud. It is safe to assume that predictions will be made on a large scale in China and the police will respond to these predictions. It is however not conceivable that this technology will substantially change police operation and police culture in China, it will rather amplify pervasiveness and bias of its practices.

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