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Digital Mediation and the Reshaping of Interethnic Relations in Contemporary China: AI Surveillance and Grid Governance in Xinjiang

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ABSTRACT

AI-driven surveillance platforms in Xinjiang are not only monitoring communities but also reshaping interethnic relations. While technology in governance has been widely studied, its role in transforming interethnic dynamics remains underexplored. Drawing on document analysis and digital ethnography, this paper situates surveillance within theories of algorithmic governance, arguing that smart governance platforms and predictive systems act as 'sanitizing' mediators. By filtering out overt conflict, they create an illusion of harmony while masking structural violence through racial profiling and re-education. Increasingly embedded in the Grid-Management System, big data and AI's perceived neutrality legitimizes authoritarian control and renders dissent illegible. This study highlights how algorithmic systems produce a façade of social stability, reconfiguring Han-Uyghur relations in Xinjiang under the guise of promoting order.

KEYWORDS

AI governance; Xinjiang; grid management system; interethnic relations; digital surveillance; China

Introduction

The rapid integration of advanced technology in China's governance illustrates the complex nature of dual-use technologies, tools that, while initially developed for civilian or administrative purposes, can also be repurposed for security and surveillance without significant modification.[1] Through the use of advanced algorithms, patterns and connections are mapped, citizens are 'profiled',[2] and potential threats to social stability are identified in a timely manner. Individuals flagged as exhibiting characteristics linked to these perceived risks are often detected and, in the best-case scenario, subjected to questioning even when no concrete wrongdoing has occurred. The risk of algorithmic bias is, in fact, significant. These systems often reflect and reinforce the assumptions and prejudices (conscious or unconscious) of their designers and the political contexts in which they are deployed. Emerging research highlights how such technologies can perpetuate or even amplify existing social inequalities, leading to false positives, discriminatory outcomes, and disproportionate targeting of already marginalized groups.[3] This duality

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[1]Svitlana V Pustovit and Erin D Williams, 'Philosophical Aspects of Dual Use Technologies' (2010) 16 Science and Engineering Ethics 17, 18.

[2]Matthias Leese, 'The New Profiling: Algorithms, Black Boxes, and the Failure of Anti-Discriminatory Safeguards in the European Union' (2014) 45 Security Dialogue 494, 494–495; Selena Silva and Martin Kenney, 'Algorithms, Platforms, and Ethnic Bias: An Integrative Essay' (2018) 55 Phylon (1960-) 9, 10; Olivia Shen, 'AI Dreams and Authoritarian Nightmares' in Jane Golley and others (eds), China Dreams (1st edn, ANU Press 2020) 144 <https://press.anu.edu.au/publications/series/china-story-yearbook/china-dreams> accessed 20 July 2025.

[3]Douglas Yeung and others, 'Identifying Systemic Bias in the Acquisition of Machine Learning Decision Aids for Law Enforcement Applications' (Rand 2021) 3–6 < https://www.rand.org/pubs/perspectives/PEA862-1.html > accessed 20 July 2025; Shen (n 2) 145; Silva and Kenney (n 2) 12–13.

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underscores the delicate balance between technological empowerment and the expansion of state surveillance, raising urgent questions about the implications for privacy, individual autonomy, knowledge production, and governance in an increasingly digitized world.

The case of the Xinjiang Uyghur Autonomous Region (XUAR) stands out as a critical subject for scholars and observers, with the region allegedly representing a testing ground for innovative paradigms of control.[4] Recurring tensions and conflicts,[5] socio-economic disparities,[6] the global spread of radical Islam,[7] and growing concerns over Han migration and resource exploitation in Xinjiang,[8] became evident when violent incidents that have resulted in thousands of casualties. The outbreak occurred on 5 July 2009, in Urumqi, became the largest violent event in the region's modern history, as protesters were met with violent repression by police, armed police and military forces.[9] As the Uyghur economist and intellectual Ilham Tohti argued, these incidents cannot be understood merely as spontaneous outbursts of ethnic hostility. Rather, they are symptoms of deeper, long-standing institutional problems rooted in the political and ideological structures established after the founding of the PRC. According to the now-imprisoned author, it was only after the tragedy of July 5 that Xinjiang began to attract significant international attention.[10]

Regional Party secretaries have implemented varying strategies to govern Xinjiang in response to shifting political priorities. Chen Quanguo (2015–2022), following his tenure in Tibet, introduced a policy of securitized techno-governance, characterized by mass surveillance, ideological re-education programs, and state-driven 'techno-solutionism' aimed at suppressing dissent and maintaining control. His successor, Ma Xingrui (2022–2025),[11] has signalled a slight shift toward this approach, including the gradual dismantling of checkpoints and re-education facilities.[12] However, assessments of his administration remain mixed and evolving, as the foundational infrastructure of digital surveillance and control remains firmly in place.[13]

This research is positioned at the intersection of contested transitions within Xinjiang, where AI-mediated governance is actively reshaping ethnic relations in the region, by arguing that Han-Uyghur dynamics are increasingly structured by state-aligned algorithmic systems, autonomous tools that embed racialized hierarchies into institutional decision-making processes. For Uyghur communities, these apps and platforms enforce an imposed digital subjectivity, compelling

[4]Lacin Idil Öztig and Abdurresit Celil Karluk, *China's High-Tech Repression against Uyghurs: Novel Theoretical Insights* (Palgrave Macmillan 2025) 6–7.

[5]James A Millward (ed), *Violent Separatism in Xinjiang: A Critical Assessment* (East-West Center 2004) 5–6.

[6]Alessandra Cappelletti, *Socio-Economic Development in Xinjiang Uyghur Autonomous Region: Disparities and Power Struggle in China's North-West* (Springer Singapore 2020) <http://link.springer.com/10.1007/978–981-15–1536-1>.

[7]Yitzhak Shichor, 'Blow up: Internal and External Challenges of Uyghur Separatism and Islamic Radicalism to Chinese Rule in Xinjiang' (2005) 32 Asian Affairs: An American Review 119, 127–128.

[8]Xun Cao and others, 'Digging the "Ethnic Violence in China" Database: The Effects of Inter-Ethnic Inequality and Natural Resources Exploitation in Xinjiang' (2018) 18 China Review 121, 122–123.

[9]Edward Wong, 'Riots in Western China Amid Ethnic Tension—The New York Times' (*The New York Times*, 5 July 2009) <https://www.nytimes.com/2009/07/06/world/asia/06china.html> accessed 20 July 2025; James A Millward, 'Introduction: Does the 2009 Urumchi Violence Mark a Turning Point?' (2009) 28 Central Asian Survey 347, 352.

[10]Ilham Tohti, *We Uyghurs Have No Say: An Imprisoned Writer Speaks* (Cao Yaxue, Cindy Carter and Matthew P Robertson trs, Verso Books 2022) 39–49.

[11]As of 1 July 2025, Ma Xingrui no longer serves as Party Secretary of Xinjiang. His successor is Chen Xiaojiang, a senior official who has held various positions within both central government and Party institutions. Notably, he served as the second director of the National Ethnic Affairs Commission of Han ethnicity, following Li Weihan, who led the ministry when it was first established in 1949. 'New Party Chief for Xinjiang Appointed' <https://english.news.cn/20250701/bd1158956e734e96afdc8100bf4e18f4/c.html> accessed 20 July 2025.

[12]Conversation that one of the researchers had with an anthropologist from Xinjiang working at the Shanghai Academy of Social Sciences, November 2024. According to the expert, Ma Xingrui's tenure and approach was influenced both by part of local officials reluctantly applying policies at the grassroots levels, and by rising unemployment especially among Uyghurs workers caused by US and EU sanctions towards companies collaborating with Xinjiang entities.

[13]For example, according to the U.S. Holocaust Memorial Museum's Simon-Skjodt Center for the Prevention of Genocide, in February 2025 concluded that violent policies and measures against the Uyghurs are continuing, and maybe even expanding. Rian Thum, 'EIGHT YEARS ON, CHINA'S REPRESSION OF THE UYGHURS REMAINS DIRE How China's Policies in the Uyghur Region Have and Have Not Changed' (THE UNITED STATES HOLOCAUST MEMORIAL MUSEUM 2025) <https://vault.ushmm.org/adaptivemedia/rendition/id_f36afdaa9fbc0c6c7443b2a5c71025f8b51f459d>accessed 20 July 2025.

engagement with an algorithmic 'Other' that operationalizes state power through mechanisms such as predictive policing, mobility restrictions, and 'social credit' penalties. This algorithmic 'Other' functions as a representation of the State and Han actors, the dominant forces within a techno-political regime that merges surveillance with discipline, suppressing resistance and reducing it to mere data anomalies.

From Physical to Digital Surveillance in Xinjiang: Continuities and Paradigm Shifts

Techno-solutionist frameworks[14] fundamentally de-emotionalize interethnic relations, depriving human interactions of their social and cultural nuances and reducing them to transactional engagements mediated by apps granted with bureaucratic agency. Drawing on Zuboff's[15] concept of surveillance capitalism, our Xinjiang case illustrates a localized iteration of algorithmic governance, where embodied negotiation is supplanted by data-driven control mechanisms. Using Chun's[16] framework of 'algorithmic authenticity', this study argues that the app's illusion of 'individual choice' masks its true function as a tool of impersonal control, a paradox in which users experience a sense of agency while being systematically nudged toward outcomes predetermined by the platform.[17] Systemic categorization and embodied discipline are central to what Öztig and Karluk describe as 'techno-panopticon governance' in Xinjiang: a regime that integrates algorithmic control technologies (e.g. facial recognition, biometric databases) with a 'transnational space of insecurity', reflecting efforts to extend China's domestic security paradigms beyond its borders.[18]

Rooted in a 'Stability Maintenance' doctrine,[19] this system merges imperial-era territorial logics with 21st-century digital authoritarianism, reframing repression as 'development' and 'anti-terrorism'. Critics condemn it as high-tech paternalism that replaces autonomy with hyper-surveillance, while proponents justify it as a bulwark against social unrest, criminal activities and separatism. The tension between these narratives underscores the paradox of Xinjiang's governance: a project that weaponizes modernity to enforce historical claims.

These developments received explicit endorsement during the 18th Collective Study Session of the Political Bureau of the CCP Central Committee on 9 December 2024.[20]

The Architecture of Surveillance in Xinjiang: exploring Apps and Digital Platforms

In contemporary China, surveillance cameras have become ubiquitous across urban landscapes, while facial recognition technology is extensively employed for access control in residential compounds, facilitating contactless payments in convenience stores, and even streamlining public transportation systems. In residential areas, QR codes are prominently displayed, enabling residents to submit reports or suggestions directly to local grid managers, further integrating surveillance into

[14]Overview of concepts related to techno solutionism: Evgeny Morozov, *To Save Everything, Click Here: The Folly of Technological Solutionism* (First edition, PublicAffairs 2013).

[15]Shoshana Zuboff, *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power—Book—Faculty & Research—Harvard Business School* (PublicAffairs, 2019) 14 <https://www.hbs.edu/faculty/Pages/item.aspx?num = 56791> accessed 20 July 2025.

[16]Wendy Hui Kyong Chun, *DISCRIMINATING DATA: Correlation, Neighborhoods, and the New Politics of Recognition* (MIT PRESS 2024).

[17]On the concept of 'hypernudge': Karen Yeung, '"Hypernudge": Big Data as a Mode of Regulation by Design' (2017) 20 Information, Communication & Society 118.

[18]Öztig and Karluk (n 4) vi.

[19]Friso MS Stevens, 'Gripped by Fear: China's Digital "Stability Maintenance" and Revanchist Emotional Nationalism' [2025] Journal of Current Chinese Affairs 3 <https://journals.sagepub.com/doi/10.1177/18681026251326100> accessed 20 July 2025; Susan Trevaskes and Delia Lin, 'Integrating Stability Maintenance into Comprehensive Governance: The Burgeoning "Safe China" Behemoth' (2024) 50 Modern China 671.

[20]Xinhua News Agency, 'During the 18th Group Study Session of the CPC Central Committee Political Bureau, Xi Jinping Emphasized the Need to Carry out All Aspects of Border-Region Governance in Depth and to Promote High-Quality Development in Border Areas' (*www.gov.cn*, 10 December 2024) <https://www.gov.cn/yaowen/liebiao/202412/content_6991784.htm> accessed 21 July 2025. (Chinese language)

everyday life. The COVID-19 pandemic further accelerated the adoption of such technologies, transforming digital surveillance into a crucial tool for grassroots governance and population control.

The Health Code (健康码, *jiankang ma*) became the primary instrument for neighbourhood organizations to enforce public health measures. Starting from 2020, the Ministry of Civil Affairs, together with relevant bureaus issued guidelines emphasizing the integration of modern information technology with community prevention measures to enhance efficiency in both preventing external virus transmission and controlling its spread within communities.[21] In line with these regulations, communities were required to implement technological measures such as QR code-based entry systems, manual registration of residents and visitors by community workers, and, where feasible, facial recognition devices to automate identity verification. License plate recognition systems were also introduced to track residents' vehicles. All collected data was recorded and shared with relevant government departments at the sub-district and township levels, accelerating data centralization. The Health Code—initially framed as a public health tool—became a 'double-edged sword': it functioned as both a mechanism of protection and a means of exclusion. Residents with codes turned yellow or red faced severe restrictions, including being barred from public spaces and denied basic services.[22]

While the integration of technology into governance and surveillance is a nationwide phenomenon in China, the situation in Xinjiang represents an intensified and more targeted application of these practices. This system not only monitors physical movements and digital interactions but also enforces a regime of predictive policing and racial profiling. The sophisticated surveillance infrastructure in Xinjiang serves as a stark reminder of the potential for these technologies to be used as instruments of state control, raising critical questions about privacy, human rights, and the balance between security and freedom.

This techno-panoptic governance model[23] leverages online and offline activities to monitor and control, particularly Uyghurs and minority groups, feeding data into the Integrated Joint Operations Platform (IJOP, 一体化联合作战平台 *yitihua lianhe zuozhan pingtai*). The IJOP, a big data[24] policing system, cross-references data to flag what are considered as suspicious behavior relying on racialized algorithmic bias to monitor and predict so-called 'threats' to state security.[25]

The unprecedented scale and sophistication of Xinjiang's surveillance apparatus[26] integrates specialized apps, advanced technologies (surveillance cameras, facial recognition), and biometric data collection (hair, blood), all feeding the IJOP. This digital system operates alongside traditional

[21]Notice from the General Office of the Ministry of Civil Affairs, the Secretariat of the Cyberspace Administration of China, the General Office of the Ministry of Industry and Information Technology, and the General Office of the National Health Commission on Issuing the 'Guidelines for Information System Development and Application for Community-Level COVID-19 Prevention and Control'—State Council Department Document—China Government Web (Chinese language) (Civil Affairs Office [2020] No. 5)] 2020.

[22]Haiqing Yu, 'Living in the Era of Codes: A Reflection on China's Health Code System' (2024) 19 BioSocieties 1, 17.

[23]Öztig and Karluk (n 4) 67–68.

[24]Big data technology, with information at its core, relies on the ability to search, analyse, and process data to achieve the searching, filtering, detection, tracking, and collection of information across a wide area. Qin Cai, 'A Study on Using Big Data to Enhance the Effectiveness of Smart Community Governance in Ürümqi' (2024) 3 Science Consultation 5, 5–7. (Chinese language)

[25]Lacin Idil Öztig and Abdurresit Celil Karluk, 'The Impact of China's High-Tech Repression on Uyghurs: A Case Study of Uyghur Diaspora in Turkiye' (2024) 43 Central Asian Survey 504, 506. Long Qiao, 'RFA Exclusive: Xinjiang Forcing Residents to Install Mobile Surveillance Software—Kazakh Woman Detained for Comments Made on WeChat' (Radio Free Asia, 13 July 2017) <https://www.rfa.org/mandarin/yataibaodao/shaoshuminzu/ql2-07132017112039.html> accessed 21 July 2025 (Chinese language).; Human Rights Watch, 'China's Algorithms of Repression: Reverse Engineering a Xinjiang Police Mass Surveillance App | HRW' (2020) <https://www.hrw.org/report/2019/05/01/chinas-algorithms-repression/reverse-engineering-xinjiang-police-mass> accessed 21 July 2025; Stefanie Kam and Michael Clarke, 'Securitization, Surveillance and "de-Extremization" in Xinjiang' (2021) 97 International Affairs 625, 629.

[26]David Tobin, Securing China's Northwest Frontier: Identity and Insecurity in Xinjiang (1st edn, Cambridge University Press 2020) <https://www.cambridge.org/core/product/identifier/9781108770408/type/book> accessed 21 July 2025; Darren Byler, In the Camps: China's High-Tech Penal Colony (Columbia Global Reports 2021); Gerald Roche and James Leibold, 'State Racism and Surveillance in Xinjiang (People's Republic of China)' (2022) 93 The Political Quarterly 442; Öztig and Karluk (n 4).

panoptic mechanisms like the grid management system and internment/re-education camps ('study sessions' 学习班, *xuexi ban*). The regionally adapted Grid Management System (网格化管理, *wanggehua guanli*), in particular, divides communities into micro-units managed by state appointees, optimizing both social service delivery and political discipline.

Data and Methods

This research relies primarily on digital ethnography, making use of both primary and secondary sources available online. Primary sources comprise official documents, including laws and regulations, which are collected from both national-level platforms such as the National Database of Laws and Regulations[27] and regional websites such as the official portal of the Xinjiang government.[28] Secondary sources include prior research both in Chinese and English, reports from non-governmental organizations, and media outlets such as *Radio Free Asia* and *China Digital Times*, which are particularly useful in uncovering information that is otherwise heavily censored in the Chinese cyberspace.

These have been accessed through targeted keyword searches, including terms like 'app', 'smart governance', and 'grid management'. Another significant source of information is from local media coverage, located via Baidu using similar search terms (e.g. 'Xinjiang', 'smart governance', 'apps', 'grid management system'). Such reports often highlight local-level initiatives and the promotion of app-based governance tools, including WeChat mini-programs. Once relevant platforms and apps were identified through these media, further targeted research was conducted to collect more specific information, including accessing and reviewing the apps and mini-programmes when possible.

In addition, because some sources referenced the use of social media in these initiatives, particularly *Douyin*, we also accessed content from official Douyin pages associated with smart governance projects, notably *Ping'e Jia*, to have a broader understanding of these apps and platforms and their link with grid governance.

All relevant media sources were systematically saved and stored in MAXQDA, where coding helped the researchers to triangulate data analysed by adopting a qualitative approach. This mixed method approach allowed for more solid arguments on recurring themes, provided support to the authors to establish patterns, particularly concerning the integration of new technologies in local governance and the narratives inviting citizens to participate in these digital initiatives.

Many of the primary sources come from official state outlets, which required balancing the dominant narratives with alternative perspectives found in academic literature and NGO reports.

It was particularly challenging to find detailed information on how specific apps are installed and used on mobile devices in Xinjiang. Moreover, only two regulatory documents related to grid management and digital surveillance were accessible online,[29] likely due to the sensitive nature of the topic, and the fact that many relevant documents may be classified as *neibu* (internal) and thus restricted from public circulation.

In an attempt to overcome these limitations, this research aims to provide a robust foundation for understanding the development of digital surveillance infrastructures in Xinjiang, serving as a stepping stone for future research, including potential engagement with the Uyghur diaspora or, where possible, direct fieldwork in the region.

[27]'National Database of Laws and Regulations' <https://flk.npc.gov.cn/> accessed 21 July 2025. (Chinese language)
[28]'Xinjiang Uygur Autonomous Region People's Government Website' < https://www.xinjiang.gov.cn/ > accessed 21 July 2025.'(Chinese language)
[29]Only the Xinjiang Uyghur Autonomous Region Urban Grid Management Technical Guidelines and the Changji Hui Autonomous Prefecture Urban and Rural Grid Management Service Regulations are, at this moment, accessible online. Available at: https://flk.npc.gov.cn/detail2.html?ZmY4MDgxODE4MGUwYTYxMzAxODBmOTdjYTM4YjNjNWI=
https://zjt.xinjiang.gov.cn/xjzjt/c113239/202102/e6b081ecc4d5469cae4092698da287aa.shtml
accessed: 08 October 2025.

The Surveillance APPs in Xinjiang

One of the key components of the surveillance state in Xinjiang is the development and use of specialized apps. 'Net Clean-up Guard' (净网卫士, *Jingwang weishi*)[30] and 'Baixing Anquan' (百姓安全, lit. 'Citizen Safety')[31] have been created to monitor, report, and suppress 'suspicious' activities.

The 'Xinjiang Public Security Net Clean-up Guard APP' (新疆公安净网卫士APP, *Xinjiang gong'an jingwang weishi*, or 'Net Clean-up Guard') is an anti-terrorism software used in various parts of the region. Officially, it is described as a mobile security optimization tool that automatically scans and detects harmful information on mobile devices, allowing users to delete flagged content with a single click (Image 1).[32] In practice, however, the app is designed to automatically scan mobile devices to detect so-called 'violent and terrorist content', illegal religious materials, and other politically sensitive files, including audio, videos, images, and e-books, and transmits the data it gathers from Uyghurs' mobile devices to the IJOP database.



Image 1. Screenshot of the scanning process of the net Clean-up Guard. Source: downcc.com APK library.

[30] 'Jingwang Weishi v1.3 Xinjiang Edition Download—Xinjiang Police Clean Internet Guardian APK v1.3 Android Version—with QR Code—Green Resource Network' (*downcc.com*) <http://www.downcc.com/soft/382870.html> accessed 17 March 2025. (Chinese language)

[31] 'Baixing Security App Download—Baixing Security Android Version v1.7.5 – KK Download Site' (*kkk.net*) <http://www.kkx.net/az/44415.html> accessed 17 March 2025. (Chinese language)

[32] For example, in 2015, China Telecom Jiangsu Branch was offering students products like 'Net Clean-up Guard', to help them access the internet safely and responsibly. Hui Wang, 'China Telecom Jiangsu: Using New Services to Embrace the 4 G Era' (2015) 31 Jiangsu Communication 25. (Chinese language).

In 2017, the Tianshan District Government of Urumqi issued a WeChat notification to residents of all ethnic groups calling for the mandatory installation by residents across the city, requiring them to self-examine their devices.[33] This was necessary to thoroughly implement the municipal government's 'Three Cleanups' campaign and ensure comprehensive coverage in the removal of violent and terrorist audio and video content.

Following its rollout in Urumqi, the government extended the mandatory installation of the software to other areas of Xinjiang. According to a Radio Free Asia (RFA) report, ten Kazakh women in the Ili Kazakh Autonomous Prefecture were arrested after installing the app and sending messages in a WeChat group about its installation. The same report also cites a Twitter account named 'Real-Time China Mainland Images', which claimed that authorities required citizens to install the app within 10 days, with police conducting random phone checks on the streets. Those found without the app installed in the mobile phone faced 10 days of detention.[34]

According to an APK website where the app is available for download, this Android-based 'software is mandatory for installation by individuals entering Xinjiang' (是入境新疆必装手机杀毒软件, *shi rujin Xinjiang bizhuang shouji shadu ruanjian*). However, it remains unclear who is specifically required to install it (for instance, if this includes tourists), how authorities verify its installation, or whether it is still in use today, with the latest available app update dating back to August 2018. At the same time, research on anti-terrorism efforts in China—such as one study on terrorist activities in Yunnan Province—suggests that apps like Net Clean-up Guard are advocated for use by counter-terrorism and stability maintenance departments to harness internet technologies in the precise detection and extraction of information related to violent extremist activity, particularly through the identification and removal of violent audio-visual content concealed on citizens' mobile phones, thus showing that these types of apps are regularly used all over China to control citizens' mobile phones content.[35]

Unlike the Net Clean-up Guard, Baixing Anquan is a more interactive tool that enables citizens to report suspicious activities by uploading text, images, and videos. Developed by the Urumqi Public Security Bureau, this app facilitates crowdsourced surveillance, as it is designed for both grassroots law enforcement and for ordinary citizens to monitor and report behaviours deemed a threat to social stability and long-term security.

To encourage participation, the authorities have implemented a reward system, offering monetary compensation via WeChat Red Packets for verified reports, with a minimum payout of 20 yuan and no upper limit,[36] and also a point-based reward mechanism for citizens who provide valid information.[37] This approach reinforces a climate where 'everyone is an informant'.[38]

To further promote the app, the Urumqi Public Security Bureau has placed QR codes in public spaces and official WeChat accounts, urging citizens to install and use the platform (Image 2).

[33]'Radio Free Asia | Xinjiang Forces Residents to Install the "Net Clean-up Guard" Mobile Surveillance App' (*China Digital Times*) <https://chinadigitaltimes.net/chinese/564246.html> accessed 21 July 2025. (Chinese language)

[34]'RFA Exclusive: Xinjiang Forces Residents to Install Mobile Surveillance Software — 10 Kazakh Women Detained for Comments on WeChat' (rfa.org, 13 July 2017) <https://www.rfa.org/mandarin/yataibaodao/shaoshuminzu/ql2-07132017112039.html> accessed 21 July 2025. (Chinese language)

[35]Cheng Hu and others, 'A Study on Measuring Violent Terrorist Activities through Multi-Dimensional Social Networks from an Intelligence Perspective' 37 Journal of Intelligence 33. (Chinese language).

[36]'Urumqi: First 18 Citizens Who Provided Clues via the "Baixing Security" App Receive Cash Rewards' (环球网, 27 July 2017) <https://www.huanqiu.com/article/9CaKrnK4leJ> accessed 21 July 2025. (Chinese language)

[37]'Urumqi Police Launch the "Baixing Security" App; Citizens Can Report Suspicious Situations—China Politics Section—The Pape' (Xinjiang Net, 27 April 2017) <https://www.thepaper.cn/newsDetail_forward_1672043> accessed 21 July 2025. (Chinese language)

[38]'Urumqi: First 18 Citizens Who Provided Clues via the "Baixing Security" App Receive Cash Rewards' (n 36). (Chinese language).



Image 2. Promotional image for the Baixing Anquan app. Source: Xinjiangnet.com.cn.

Additionally, all police officers and auxiliary police are required to register and actively use the app. A '1 + 5' promotion model has also been introduced, where each officer must encourage at least five friends or family members to install and use the app, amplifying its reach through peer influence.[39]

The app functions as a data collection tool, allowing authorities to gather, analyse, and act upon information related to activities deemed disruptive to state security or political objectives. The latest update dates back to January 2024, suggesting that the app might remain in use as of 2025.

Among the latest apps deployed in Xinjiang is the Xinjiang Smart Community App (新疆智慧社区, *Xinjiang zhihui shequ*) developed by Shenzhen Zhongtian Qiankun Information Technology Co., Ltd. for smart community management.[40] This platform integrates big data, cloud computing, and mobile internet to enable facial recognition-based identity verification, access control, visitor management, and real-time identity recording, functioning as a city management platform, covering urban security, sanitation, patrol supervision, and public reporting. While officially positioned as a tool for property management and urban governance, it also provides foundational data support for comprehensive surveillance and 'promote harmony and stability in communities' in 'a region of rich cultural diversity' such as Xinjiang.[41]

Smart community platforms rely on cloud platforms that use Internet of Things (IoT) and AI to collect and manage data into a centralised data hub, extending its reach across towns, communities, and grid management zones, reinforcing state oversight by tracking and managing residents, assessing social stability risks, and monitoring key demographics, such as special population groups (特殊人群, *teshu renqun*), which is a category that usually includes individuals under community correction,[42] persons with mental health conditions, former inmates, individuals with physical or intellectual disabilities, members of cults, at-risk youth with potential criminal tendencies, people

[39]'Baixing Security App Download—Baixing Security Android Version v1.7.5 – KK Download Site' (n 31).

[40]'Xinjiang Smart Community Mobile App Download — 2025 Official Latest Version—Xinjiang Smart Community App iOS Download—Huajun Software Park' (*onlinedown.net*) <https://www.onlinedown.net/soft/1212564.htm> accessed 21 July 2025. (Chinese language)

[41]'Xinjiang Smart Community Governance Platform Smart Community Platform' (baijiahao.baidu.com, 25 September 2024) <https://baijiahao.baidu.com/s?id = 1811127915183817526&wfr = spider&for = pc> accessed 21 July 2025. (Chinese language)

[42]According to the Community Correction Law, there are four categories of individuals eligible for community correction in China: those sentenced to control (*guanzhi*), those given suspended sentences (probation), those granted parole, and those approved for temporary execution of sentences outside prison. These four categories share a common identity—they are all offenders serving their sentences within the community, with their personal freedom subject to varying degrees of restriction. They are classified as 'community correctional personnel' and are uniformly governed by the Community Correction Law and other relevant laws and regulations regarding their supervision, education, and assistance. Ministry of Justice official website, 'The Past and Present of the Four Categories of Individuals under Community Correction' (*moj.gov.cn*, 16 August 2023) <https://www.moj.gov.cn/pub/sfbgw/jgsz/jgszzsdw/zsdwzgjygzxh/zgjygzxhxwdt/202308/t20230816_484520.html> accessed 21 July 2025. (Chinese language)

living with HIV/AIDS, socially idle or transient persons, and drug users—by creating detailed databases and enabling real-time tracking through mobile apps.[43]

Through data analysis, the Xinjiang Smart Community platform offers decision-making support for community administrators while encouraging resident participation in community governance through features like online interaction and feedback submission.[44] Additionally, localities are also implementing their own smart community platforms, based on the same idea of seamless governance and efficiency in service provision, such as the smart community platform on the WeChat official account built by Kalasu Community in Kalasu Subdistrict, Khorgos, a county-level city Ili Kazakh Autonomous Prefecture, Xinjiang (Image 3). To increase citizens participation and engagement in grassroots governance, through the platform, a point-based management system is introduced, creating categories like ethnic unity (民族团结, *minzu tuanjie*), legal education sessions, volunteer services, and suggestions and proposals, while establishing a 'behaviour bank' (行为银行, *xingwei yinhang*) for residents based on 210 resident behaviours across 14 categories.

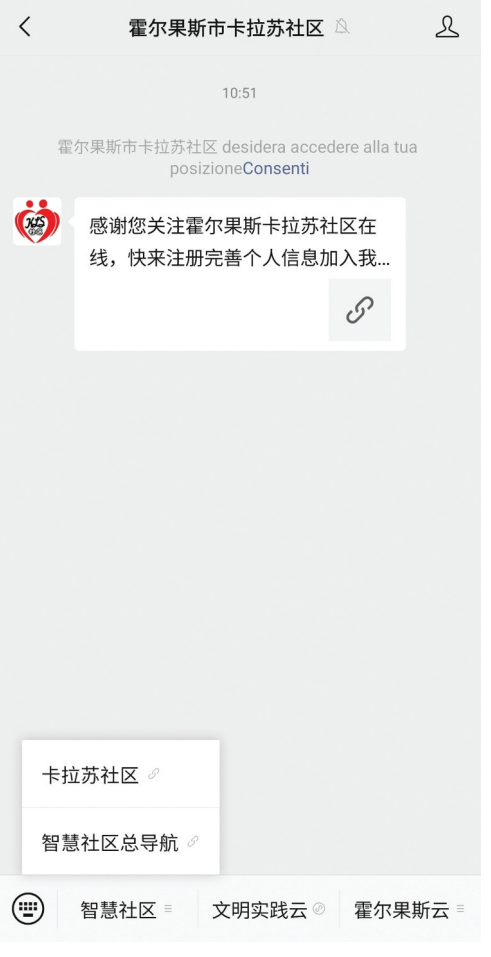


Image 3. Smart community platform integrated in the WeChat official account of the Kalasu subdistrict in Khorgos. Source: Screenshot taken by the authors.

By encouraging entire families to join and share points, the platform integrates both online and offline participation. Activities like daily check-ins, flag-raising ceremonies, community classes,

[43]Yongxiang Sun and Guangmei Zhang, 'Development of a Monitoring System for Special Populations Based on a Smart Community Cloud Platform' (2022) 9 Electronic Components and Information Technology 114. (Chinese language).
[44]'Xinjiang Smart Community Governance Platform Smart Community Platform' (n 41).

household head meetings, and ethnic unity programmes all earn points. These can be redeemed for goods and services at partner supermarkets, restaurants, car washes, domestic service providers, and training centres, making them a kind of 'hard currency'. Points accumulate without expiration and contribute to residents' rankings, which serve as a basis for rewards, Party member selection, and nominations for model families and moral exemplars.[45]

Yunxiuli Community in Kuytun City, also part of the Ili Kazakh Autonomous Prefecture, has implemented the 'Smart Kuytun' initiative through its proactive Party branch. At the heart of this initiative is a smart platform that leverages big data and AI to enhance community governance. One of its key features is the automatic classification of resident information, which allows the system to generate appropriate visit frequencies for local officials, and send text message reminders to cadres about their upcoming tasks. To streamline resident management, the Party branch assigns each household a unique QR code, which is placed inside their home. When cadres conduct home visits, they simply scan the code to access the resident's digital profile and update basic information as needed. The platform also creates and maintains comprehensive electronic records—including population and housing data, as well as individual files for low-income households, the unemployed, and other vulnerable groups—enabling centralized, categorized, and dynamic management across the community.[46]

The Role of Big Data and Artificial Intelligence in the Governance of Xinjiang

The Integrated Joint Operations Platform (IJOP) is a unique development within the Chinese context. According to scholarly sources and reports from Non-Governmental Organizations such as Human Rights Watch, the data, gathered from diverse sources such as CCTV footage, health records, and also from apps used by community workers and local law enforcement officers, as well as those collected by citizens to report issues, are processed by IJOP using AI and big data analytics to track individuals' movements, behaviours, and activities and to anticipate potential threats and risks. Individuals are classified based on predetermined threat indicators, which range from religious practices and overseas travel to behavioural anomalies like avoiding social interactions or using an abnormal amount of electricity.[47] The generative element informs even routine activities—such as using specific apps, attending religious gatherings, or traveling across provincial borders—which can be automatically flagged, triggering local police responses which range from routine questioning to indefinite detention. This large-scale data analysis work is central to the Chinese government's strategy of preemptively identifying potential threats before they materialize. The algorithms employed are increasingly sophisticated, leveraging AI to predict and detect behaviours linked to 'terrorist' activities, political dissent, or religious extremism.[48]

Although no Chinese sources explicitly mention the IJOP, the existence of such nationwide data aggregators is primarily documented through reports by NGOs and think tanks[49] and some pioneering scholarly research, who draw on interviews with Uyghur refugees as well as on in-depth diachronic reflections on their experiences with digital surveillance technologies.[50] Examples of similar data aggregation systems can be found in Chinese sources such as Qi Zhiwei,[51] where the analysis of the National Research Projects for Ethnic Affairs between 2014 and 2018 highlight that

[45]Yili Organization Department, "Internet + Party Building' Supporting Xinjiang's Smart Communities' [2019] Urban Development (Property Management Edition) 33. (Chinese language).
[46]ibid.
[47]Öztig and Karluk (n 4) 67–77.
[48]Human Rights Watch (n 25).
[49]Vicky Xiuzhong Xu, James Leibold and Daria Impiombato, 'The Architecture of Repression' (ASPI International Cyber Policy Centre 2021) Policy Brief 51/2021 <https://www.aspi.org.au/report/architecture-repression/> accessed 21 July 2025; Human Rights Watch (n 25).
[50]Öztig and Karluk (n 25).
[51]Qi Zhiwei, 'Frontier Hotspots and Development Trends in Ethnological Research—An Analysis Based on Research Projects of the State Ethnic Affairs Commission (2014–2018)' (2018) 5 Guangxi Ethnic Studies. (Chinese language).

ethnic culture and governance innovation became central themes in recent research in ethnology and sociology. At the same time, digital governance and international perspectives emerged as new and increasingly promising research directions. This shift reflects a growing emphasis on aligning theoretical frameworks with empirical governance needs, and the related policy orientations, particularly in safeguarding social stability in ethnic border regions by promoting cross-regional collaborative governance and to develop intelligent, data-driven systems for managing ethnic affairs.[52] As a result, information technologies such as facial recognition for security checks, GPS tracking, WeChat QR code—based home visits, integrated alarm and logistics systems, and counter-terrorism cybersecurity tools, are increasingly becoming accepted and well-recognized mechanisms for maintaining stability, leading the assessment of social security and public sentiment in ethnic regions to fully enter the era of 'information-based governance'.[53]

Within this broader framework, it is worth mentioning how Urumqi—the regional capital—has seen the development of a city-wide digital network that connects all its communities to the national e-government system, aiming to enhance the efficiency and accessibility of government services. This is exemplified by the city's promotion of smart communities through platforms like the Comprehensive Municipal Social Governance Service Platform, the Conflict Mediation and Resolution Platform, and the 'Ping'an E-Jia' WeChat tools (discussed further in subsequent sections). These platforms streamline routine administrative tasks such as data collection, conflict resolution, and real-time alerts, while aggregating surveillance data from video monitoring, facial recognition, and vehicle tracking across 1126 urban and rural communities. This integration enables a more comprehensive system for monitoring and regulating community life.[54] Additionally, the Smart Comprehensive Governance platforms (智慧综治, *zhihui zongzhi*) extend beyond government and community workers to include property management companies, which are typically privately owned. Traditionally responsible for overseeing daily operations within residential communities—such as managing green spaces, cleaning services, and security—these companies now play a key role in feeding data into the surveillance system.[55] The Urumqi municipal government actively creates narratives aimed at promoting smart community platforms, which leverage big data to enhance social stability through improved monitoring of population movement and identification of unfamiliar individuals. Integrated data-sharing systems for vehicle management, access control, and surveillance not only raise residents' safety awareness but also encourage their active participation in community security efforts, which are considered an essential factor in maintaining stability in Xinjiang.[56]

These technological advancements are officially praised for enhancing service delivery to residents and for their potential to support the intelligent governance of ethnic affairs. Chinese scholars focus on the governance risks stemming from data distortion or information leaks,[57] and limitations in its potential development due to differences in local finances, the development of software and hardware, availability of professional talent, and the overall educational level of residents.[58] Scholars have pointed out that Xinjiang's demographic characteristics and the Chinese government's focus on combating political and religious extremism have provided a fertile ground for experimenting with advanced digital surveillance. Even Chinese media, in commenting on the Xinjiang Smart community app, noted that 'It sets a new benchmark for community governance in Xinjiang and offers valuable insights for other regions'.[59] In fact, the tools and methods initially deployed in

[52]ibid 64.
[53]ibid 67.
[54]Xinjiang Civil Affairs, 'Department of Civil Affairs of the Xinjiang Uygur Autonomous Region' (xinjiang.gov.cn, 18 July 2023) <https://mzt.xinjiang.gov.cn/xjmzt/c112993/202307/9d967c3259d74833939bb4eaff71c774.shtml> accessed 21 July 2025. (Chinese language)
[55]ibid.
[56]Cai (n 24) 5.
[57]Qi (n 51) 67.
[58]Cai (n 24) 7.蔡 (n 31), 7.
[59]'Xinjiang Smart Community Governance Platform Smart Community Platform' (n 41).

Xinjiang are not confined to the region; rather, they align with broader trends in China's increasingly sophisticated surveillance infrastructure.

These technologies are not temporary measures but rather permanent fixtures in China's governance model. In 2025, they continue to evolve alongside advancements in artificial intelligence and big data. Security bureaus have adopted DeepSeek, an AI-driven software designed to integrate surveillance data with predictive policing capabilities, further enhancing law enforcement's ability to monitor and manage populations.[60] As China refines these technologies, Han-Uyghur relations in Xinjiang evolve into a new dimension, and an expansion into other regions and domains appears inevitable, raising critical questions about the future of privacy, civil liberties, and digital governance.

Xinjiang not only serves as a testing ground for the experimentation and innovation of digital surveillance technologies but also as a site for the adaptation of governance systems already present in other areas of China, such as the grid management system. The following section will briefly examine how the grid system has been tailored to Xinjiang's socio-political context and explore its significance in bridging the classic panopticon framework with what has been defined as the techno-panopticon.

Grid Management System: A Local Adaptation to Xinjiang's Surveillance Needs

The grid system, which is designed to be adaptable to local contexts, has been integrated into Xinjiang's governance mechanisms in a way that reflects the region's socio-political realities. This adaptation underscores how the state can modify and transfer established governance methods to different areas to meet the specific demands of the locality (in this case, Xinjiang), further reinforcing the region's already existing surveillance infrastructure.

This shift to a techno-panoptic governance model is reinforced by the adaptation of the grid management system, which is a cornerstone of China's grassroots governance structure. The grid-management system (网格化管理, *wanggehua guanli*), now rebranded as Grid-based Service Management (网格化服务管理, *wanggehua fuwu guanli*), by design operates as a multi-layered governance mechanism that integrates actors and agencies both horizontally—through coordination among local government departments, community workers, and security personnel—and vertically, by linking neighbourhood-level agencies and workers with higher-level administrative offices. This is facilitated by a dedicated digital infrastructure and data-sharing platform, which enables real-time monitoring and response. Simultaneously, the system maintains a strong physical presence on the ground through practices such as home visits, regular inspections, and direct engagement with residents, ensuring that social control is both technologically mediated and also deeply embedded in the everyday fabric of community life.[61]

Initially piloted in major Chinese cities such as Beijing and Shanghai in the early 2000s, as a method for enhancing urban governance, social stability and security,[62] it has been gradually adopted widely in all the provinces in China.[63] However, the absence of central regulations and

[60]'Chengdu High-Tech Public Security Welcomes a "Super Brain": Intelligent Upgrade of Future Policing' (baijiahao.baidu.com, 21 February 2025) <https://baijiahao.baidu.com/s?id = 1824604081661395965&wfr = spider&for = pc> accessed 21 July 2025. (Chinese language)

[61]Di Xiaoxing, 'Building a Community Community: Reflections on Approaches to Responding to Major Public Health Emergencies' [2023] 3 Study and Exploration (Chinese language); Beibei Tang, 'Grid Governance in China's Urban Middle-Class Neighbourhoods' [2020] 241 The China Quarterly 43.

[62]Tang (n 61) 55–57; Minxin Pei, 'Grid Management: China's Latest Institutional Tool of Social Control | China Leadership Monitor' (China Leadership, 2 March 2021) < https://www.prcleader.org/post/grid-management-china-s-latest-institutional-tool-of-social-control> accessed 22 June 2025; Jean Christopher Mittelstaedt, 'The Grid Management System in Contemporary China: Grass-Roots Governance in Social Surveillance and Service Provision' (2022) 36 China Information 3, 5.

[63]Since 2020, many local governments both at the provincial, city and district level, have issued regulations targeting the standardisation of the Grid-based service management. Many of these regulations can be accessed through: 'National Database of Laws and Regulations' (n 27). Before then, governance of the system was primarily based on district and subdistrict regulations, with no central-level directives, leading to local variations and different grid models across the country. A key feature of the system is its adaptability: even at the provincial level, regulations acknowledge that sub districts are responsible for implementing the grid management system according to local needs, while operating with workforce and financial constraints.

differences in available funding among and within provinces, and even cities, have resulted in significant local variations and a growing ambiguity regarding the roles, relationships, and tasks that grid managers should undertake.[64]

In Xinjiang, the grid-management system was first adopted in 2013 under Zhang Chunxian's leadership (2010–2016),[65] with a strong focus on maintaining social stability through the division of urban communities into smaller units and the extensive installation of enclosures, gates, surveillance cameras, police stations, and paramilitary forces, thus integrating high technology with grassroots security patrols.[66] Following his appointment as Xinjiang's Party Secretary in August 2016, Chen Quanguo expanded the existing grid management system by integrating advanced surveillance technologies and dramatically increasing security personnel in the region, further developing it into an all-encompassing mechanism of digital and physical control.[67]

Under Chen Quanguo, a multi-tiered policing system was established that relied on a vast network of surveillance infrastructure, the exponential recruitment of security personnel (many of whom were Uyghurs), and the expansion of convenience police stations (便民警务站, *bianmin jingwu zhan*). These stations were first introduced in Tibet under Chen's leadership, and then in Xinjiang to function as critical nodes within the grid system, operating 24/7 and linked to police databases via an extensive CCTV surveillance network.[68]

The grid management system has thus developed differently from other provinces, both in terms of regulation and organizational structure. While previous research has highlighted the offline role of grid managers,[69] who may be either community workers affiliated with existing organizations or newly appointed personnel tasked primarily with home visits and patrols, this study expands the discussion by examining the regulatory framework (or lack thereof), the role of smart governance and technology, and the grey areas in its implementation.

From Regulatory Gaps to Digital Realities: Implementing Grid Governance in Xinjiang

Unlike other provinces that have issued regulations (or Measures, 办法 *banfa*) to standardize the grid model, no publicly available provincial-level regulation for Xinjiang has been identified through central or local government sources online. The only known regulation specifically addressing the grid system is published from Changji Hui Autonomous Prefecture, issued in 2022.[70] Changji is located northwest of the regional capital, Urumqi, and is part of the historical Dzungaria region. Changji is home to a diverse population, including Hui people (a Chinese Muslim ethnic group), Han Chinese, Uyghurs, Kazakhs, and other ethnic minorities. The grid regulation underscores the importance of smart governance, explicitly stating that urban and rural grid-based management should adhere to principles such as Party leadership, government responsibility, and technological support. Additionally, it expands the responsibilities of grid workers to include information collection and reporting on stability maintenance, ethnic unity, and social security—elements absent from grid regulations in places like the Tibetan capital Lhasa.[71]

[64]Mittelstaedt (n 62).

[65]While one could argue that the initial implementation of grid management in Xinjiang coincided with a period of heightened state and civic violence, it also overlapped with the early years of Xi Jinping's leadership and the increased emphasis placed on strengthening grassroots and social governance. Thus, while concerns over social stability may have influenced the development in Xinjiang, other political and administrative factors likely played a role as well. For instance, in 2013, local regulations in Gusu District, Suzhou (Jiangsu Province) called for the expansion of grid management, reflecting broader national trends.

[66]Öztig and Karluk (n 4) 57.

[67]Kam and Clarke (n 25) 634; Zenz & Leibold, 2020, in Öztig and Karluk (n 4) 57.

[68]Kam and Clarke (n 25) 634.

[69]ibid 634–635; Öztig and Karluk (n 4) 57.

[70]'Changji Hui Autonomous Prefecture Urban and Rural Grid-Based Management Service Regulations' (National Database of Laws and Regulations, 9 May 2022) <https://flk.npc.gov.cn/detail2.html?ZmY4MDgxODE4MGUwYTYxMzAxODBmOTdjYTM4YjNjNWI=> accessed 21 July 2025. (Chinese language)

[71]'Lhasa City Grid-Based Service Management Regulations—National Database of Laws and Regulations' (National Database of Laws and Regulations, 9 September 2023) <https://flk.npc.gov.cn/detail2.html?ZmY4MDgxODE4YWRhOWZiZjAxOGIxMzQ4YjdjOTU4OGI%3D> accessed 21 July 2025. (Chinese language)

The emphasis on smart governance in Xinjiang's grid system is also evident in the '14th Five-Year Plan for Urban Management and Law Enforcement in the Autonomous Region', which promotes the integration of big data, AI-driven enforcement, and grid management. Pilot projects have been launched in eight cities, including Hami and Kuytun, to explore a 'big data + grid' model, facilitating the interconnection of public data resources across multiple levels of government. By the end of 2025, Xinjiang aims to establish a province-led urban operation management service platform (自治区城市运行管理服务平台, *zizhi qu chengshi yunxing guanli fuwu pingtai*) with vertical data-sharing capabilities spanning the autonomous region, prefectures, and counties.[72]

The discussion on regulation and technological integration also reveals significant ambiguities in Xinjiang's grid management system. Unlike in other regions of China, where subdistrict offices typically oversee and finance the system, in Xinjiang, leaked budget documents from Bayingolin and Urumqi suggest that the grid system is managed by the Xinjiang Political and Legal Affairs Commission (PLAC, 政法委员会, *Zhengfa Weiyuanhui*).[73] Additionally, according to ASPI, Xinjiang's IJOP (Integrated Joint Operations Platform) is reportedly managed by the PLAC through the Counterterrorism and Stability Maintenance Command.[74]

Although no Chinese official government documents or media sources confirm this, one of the most telling indicators of the grid system integration into the region's digital surveillance infrastructure is the WeChat mini-program 'Ping'an E-Jia' (平安E家, lit. 'Peace Smart Home') (Image 4). Highly promoted by grid workers during their patrols to collect, transmit, and address citizen requests,[75] it is also overseen by the Political and Legal Affairs Commission (PLAC).

In 2022, the Cyberspace Administration of China recognized Xinjiang's 'Ping'an E-Jia' WeChat public account as one of the top 100 platforms for 'Following the Online Mass Line'. According to official reports, the platform—operated by the Xinjiang PLAC—has facilitated the rapid collection and resolution of over 2.71 million public complaints since its launch in 2016.[76]

In addition to its WeChat public account, 'Ping'an E-Jia' is actively promoted through the official Douyin account of the XUAR Grid-based Service Centre.[77] With nearly 300,000 followers, the account posts daily videos showcasing grid management work and related activities across Xinjiang (Image 5), consistently attracting views and positive comments from netizens across China.

Even in the absence of formal regulations, online sources—including social media posts, official media outlets, and WeChat public accounts—clearly indicate that the grid management system is

[72]'14th Five-Year Plan for Urban Management and Law Enforcement in the Autonomous Region—Planning Information—Xinjiang Uygur Autonomous Region Department of Housing and Urban—Rural Development' (xinjiang.gov.cn, 9 October 2023) <https://zjt.xinjiang.gov.cn/xjzjt/c113442/202310/3ec1f9d9053f4aeeb0bd034aa2312a63.shtml> accessed 21 July 2025. (Chinese language)

[73]The PLAC is a powerful CCP body responsible for overseeing and coordinating the country's internal security apparatus, which plays a central role in maintaining social stability, surveillance, and political control, especially in sensitive regions like Xinjiang 'Integrated Joint Operations Platform' (China Digital Space) <https://chinadigitaltimes.net/space/%E4%B8%80%E4%BD%93%E5%8C%96%E8%81%94%E5%90%88%E4%BD%9C%E6%88%98%E5%B9%B3%E5%8F%B0> accessed 21 July 2025 (Chinese language); Vicky Xiuzhong Xu, James Leibold and Daria Impiombato, 'Exposing the Chinese Government's Oppression of Xinjiang's Uyghurs' (The Strategist, 19 October 2021) <https://www.aspistrategist.org.au/exposing-the-chinese-governments-oppression-of-xinjiangs-uyghurs/> accessed 21 July 2025.

[74]Xu, Leibold and Impiombato (n 73).

[75]'[Grid News] Qiakuertu Town Yingbin Road Community Grid Workers Conduct Door-to-Door Promotion of Xinjiang Ping'an E-Home and Xuedu Linked-Household Platforms' (WeChat Public Platform, 24 April 2024) <https://mp.weixin.qq.com/s?biz=MzI3NjE3NDQxNg==&mid=2650618846&idx=2&sn=6e485da9d94cfb4196c25f05d71b4dc5&chksm=f26f0fa7958e7649929bde51568ad9cd097068466713d75d1df22fbb13ee963dbeba2c698c55#rd> accessed 21 April 2025. (Chinese language)

[76]Xinjiang Legal Daily, '"新疆平安E家"获评"国字号"荣誉称号 Xinjiang Ping'an E-Home' Awarded a National-Level Honorary Title' (WeChat Public Platform, 19 January 2023) <https://mp.weixin.qq.com/s?__biz=MzUxMzM4MDA5Nw==&mid=2247631230&idx=2&sn=f3822ad5f0750c20e325635584da3eea&chksm=f835da87745facbba91fa0ac8ba0e3b435b96f101c957a688f1626b1de3841855fb2ae535468#rd> accessed 21 April 2025. (Chinese language)

[77]Douyin is the Chinese version of TikTok.



Image 4. Homepage of the Ping'an E-Jia, at the top, citizens can access 'complaint about difficulties', 'information tip-off', 'submit feedback', 'safety hazard', 'anti-gang and crime eradication', and community services at the bottom. Source: Screenshot taken by the authors.

being implemented across the entire province, largely through provincial-level platforms overseen by the PLAC. For example, Urumqi has promoted the use of the 'Ping'an E-Jia' WeChat platform to encourage residents to report difficulties and safety hazards. This is integrated with the 'People's Voice Cloud · Direct Line to the Secretary' (百姓说事云·书记直通车, *baixing shuoshi yun · shuji zhi tongche*), an intelligent system that leverages AI and big data technologies. After scanning a 'voice code' via WeChat, residents can submit problems, which are then routed by subdistrict or township authorities through a desktop system to the relevant community (or village for rural areas) or functional department. Once assigned, specific staff members verify and address the matter, either through home visits or by inviting the concerned parties to a designated 'People's Voice Point', physical spaces within the district where residents can express concerns or provide feedback.

After resolution, updates are uploaded to the platform, and follow-up calls are conducted to ensure satisfactory handling, forming a closed-loop feedback system. More complex issues are escalated to a special working team and may be submitted in writing to the district party secretary for higher-level coordination.

Urumqi combines online platforms with offline services, embedding digital governance into grassroots structures. Across the city, 'People's Voice Points' have been established in every grid to



Image 5. Main page of the Douyin account of the XUAR grid-based Service Centre. Source: Screenshot taken by the authors.

provide accessible venues for public engagement. In Tian Shan District alone, 184 such points have been set up. Grid workers use the Smart Comprehensive Governance app to report issues, following a collaborative process: problems are first identified within the grid, then reported to the community level; if unresolved, they are escalated to subdistrict officials and, if needed, forwarded to relevant government departments.[78]

The shift toward a way to live interethnic relations that is mediated by a digital dimension is becoming increasingly evident. Community workers, such as those in *juweihui* (居委会, neighbourhood committees) and grid managers (网格员, *wanggeyuan*), are required to be technologically proficient, they are expected not only to engage in physical surveillance—such as conducting home visits and community patrols within the grids they are assigned to—but also to participate in digital surveillance, by feeding data into large-scale big data systems. For example, the above-mentioned Yunxiuli Community in Yili, where the Party branch has implemented a ‘Smart Platform + Grid’ governance model. This system capitalizes on the roles of grid workers and household coordinators, metaphorically referred to as the ‘flashlight’ and ‘spotlight’ of the community.[79] The division of rural and urban communities into smaller grids allows for meticulous oversight of residents, where each grid unit becomes a microcosm in which individuals’ movements, behaviours, and activities can be tracked.

While the development of comprehensive digital platforms and applications has improved the efficiency of service delivery to residents, it also raises significant concerns. Community workers—including neighbourhood committee staff, employed grid managers, and property management company employees—are tasked with systematically collecting and uploading data to these platforms. The creation of city- and even province-level data aggregation systems prompts questions about how this information is used, especially given the opacity of such processes. The increasing reliance on AI and big data analytics further amplifies these concerns, as such technologies have the potential to disproportionately target specific segments of the population, as previous research has suggested.[80]

[78]‘Department of Justice of the Xinjiang Uygur Autonomous Region’ (*sft.xinjiang.gov.cn*) <https://sft.xinjiang.gov.cn/xjsft/dffz/202310/266199e6f7e941a7bea723f7e91cc43f.shtml> accessed 21 July 2025. (Chinese language)
[79]Yili Organization Department (n 45).
[80]Öztig and Karluk (n 25) 213–218; Byler (n 26) 19.

Conclusions

This study examines the evolution and deployment of surveillance technologies in Xinjiang, particularly their integration into local governance through platforms such as the grid-management system and community smart mini-programs. While prior scholarship has emphasized policy experimentation in Xinjiang, this paper seeks to extend that line of inquiry. The development of the grid management system in Xinjiang may represent another, still under-examined, instance of policy experimentation. Unlike the visible spectacle of re-education camps, the grid system operates through seemingly mundane, everyday infrastructural practices. However, its offline activities—such as home visits and neighbourhood patrols—are closely integrated with digital tools, including WeChat mini-programs, AI-powered reporting platforms, and centralized data systems. Together, these mechanisms function as potent instruments of surveillance and, potentially, repression.

The development of this surveillance structure becomes even more significant as it extends beyond China's borders, particularly in targeting the Uyghur diaspora,[81] and as Chinese companies actively export these technologies through initiatives such as the Digital Silk Road.[82] In this way, Xinjiang is not only a frontier of domestic experimentation, but also a testing ground for surveillance infrastructures that may shape global trajectories of the techno-panopticon.

This new environment provides a strong foundation for the further investigation of interethnic relations and Han—Uyghur interactions, which appear to be mediated by this new pervasive digital infrastructure. Future research and fieldwork may help provide grounded insights into how surveillance is experienced and negotiated on the ground.

More broadly, this research contributes to critical discussions on the global implications of dual-use technologies in governance. The case of Xinjiang illustrates how tools initially designed for public service delivery and administrative efficiency can be repurposed as instruments of coercive control. As these technologies enable a seamless integration between online monitoring and offline enforcement, they blur the boundaries between service and surveillance, governance and repression. However, a narrow focus on the more evident phenomena, such as internment camps and high-tech systems, risks obscuring the more mundane, but no less significant, human infrastructure that supports this apparatus. On the ground, community workers play a pivotal role in operationalising these technologies: they conduct home visits, monitor daily activities, enforce the use of digital platforms, and maintain a constant presence in the lives of ethnic minorities across Xinjiang. These workers are essential to the implementation of grid governance and the functioning of the surveillance state, revealing how technological systems rely on embedded labour to extend state power into the everyday.

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Author Contributions

CRediT: **Alessia Orazzo:** Data curation, Investigation, Methodology, Writing – original draft; **Alessandra Cappelletti:** Conceptualization, Supervision, Writing – review & editing.

[81] Öztig and Karluk (n 25) 198.

[82] China's Digital Silk Road and Africa's Technological Future and Motolani Agbebi, 'China's Digital Silk Road and Africa's Technological Future' (Council on Foreing Relations 2022); Valerio Fabbri, 'The Great Leap of China's Tech Companies in Africa' (Geopolitica.info, 9 August 2023) <https://www.geopolitica.info/great-leap-china-tech-africa/> accessed 22 July 2025.

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No potential conflict of interest was reported by the author(s).

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Data Availability Statement

The authors confirm that the data supporting the findings of this study are available within the article. Supplementary data are available from the corresponding author, upon reasonable request.

Research Ethics and Consent

No ethical approval was required for this study as it did not involve human subjects. The research utilized online archives and materials, and all sources of archival data were publicly available.