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New Technologies in Combating Child Trafficking in China: Opportunities and Challenges for Children's Rights

*Ling Han**

Abstract

Child trafficking and the sale of children are violation of human rights. In China, child trafficking is criminalised, and a series of measures have been taken to prevent and prosecute relevant crimes and to protect victims of trafficking. Since a decade ago, new technologies have been applied to combat child trafficking and child abduction in China. This article analyses what are the advantages and shortcomings of these new technologies from a human rights-based perspective. Firstly, it explains the operational models of three applications of technologies that have been developed and promoted in China, namely DNA database for victims of trafficking, facial recognition technology, and Child Abduction Emergency Alert Platform. Afterwards, the study focuses on analysing how these applications challenge the key principles emphasising on children's rights. This study finds that all three technologies are post hoc reaction or remediation methods that cannot prevent child trafficking. The DNA text and facial recognition have increased the possibility of family reunification, and the Alert Platform reduce the possibility of children at risk to suffer other violations. However, while contributing to the fight against child trafficking, new technologies have brought new challenges to human rights principles. As measures concerning children, they failed to take the best interest of children as the primary consideration, nor did they take into account the opinions of children. The privacy of the child victim and other children were infringed, and the equal access to these technologies for children belonging to disadvantaged social groups are at risk.

Keywords: *Child trafficking, child abduction, rights of the child, new technology*

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Introduction

Child trafficking and the sale of children are heinous crimes and serious violation of children's rights that concerns every state. The total number of detected trafficking victims in the world in 2016 was around 25 thousands of which 30% were children (UNODC 2018), however, it is only the tip of the iceberg (Kragten-Heerdink *et al.* 2017, Laczko and Gozdziaik 2005, Liu 2010, Rafferty 2007, Savona and Stefanizzi 2007, UNODC 2006). The crime of child trafficking has a long history in China and became rampant again in the 1980s (Li, Tan, *et al.* 2017, Li, Wang, *et al.* 2017, Liu 2003, Shen *et al.* 2013, Zhang 2006). Children were abducted and then sold to buyers for a series of purpose, including illegal adoption, forced begging, sexual exploitation, labour exploitation and conducting criminal activities (Chen 2000, Lin 2015, Liu 2010).

The Chinese government has been making efforts in combating child trafficking for decades. The abduction and the sale of children have been criminalised since the adoption of the first Criminal Law of the People's Republic of China (hereinafter China) in 1979. After the ratification of international treaties, in particular the Optional Protocol to the Convention on the Rights of the Child on the Sale of Children, Child Prostitution and Child Pornography¹ (hereinafter CRC-OPSC) and the Protocol to Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Children, supplementing the United Nations Convention against Transnational Organized Crime² (hereinafter Palermo Protocol), China has taken further measures to combat child trafficking, including amending law and stipulate regulations³, issuing national Plan of Action (NPA) on Combating Trafficking in Women and Children⁴, establishing an organisational and coordinative mechanism on combating trafficking in women and children, taking special

¹ Adopted by the General Assembly of the United Nations on 25 May 2000 and entered into force on 18 January 2002. China has ratified the protocol on 3 December 2002.

² Adopted by the General Assembly of the United Nations on 15 November 2000 and entered into force on 29 September 2003. China has accessed the Palermo Protocol on 8 February 2010.

³ The penalty imposed on the crime of child trafficking was raised, and the death penalty is permissible in especially serious circumstances in the Amendment of Decision of the Standing Committee of the National People's Congress Regarding the Severe Punishment of Criminals Who Abduct and Traffic in or Kidnap Women or Children (2009 Amendment) adopted by the Standing Committee of the National People's Congress. [全国人大常委会关于严惩拐卖、绑架妇女、儿童的犯罪分子的决定(2009修正)]. Order No. 18 of the President of the People's Republic of China.

⁴ In 2007 the State Council of China issued the first Plan of Action (NPA) on Combating Trafficking in Women and Children (2008-2012), which was then substituted by the NPA (2013-2020) formulated in March 2013.

police actions of crackdown crime of trafficking⁵, and collecting data on victims or suspected victims of child trafficking. In addition, the penalty imposed on the crime of child trafficking was raised, and the death penalty is permissible in especially serious circumstances. Over the years, technologies applied to combating child trafficking and child abduction has also evolved, including the national deoxyribonucleic acid (DNA) database, the Chinese Child Abduction Emergency Alert Platform (hereinafter Alert Platform) and the mobile application for police, as well as the recently emerged artificial intelligence (AI) facial recognition technology.

The relationship between technology and children's rights has been analysed from different perspectives. While 'digital revolution' has brought many benefits to humanity, it has also led to a series of concerns, including on child security and privacy (Alper and Goggin 2017, De Felice 2017, Fu 2018, Macenaite 2017), the exclusion of children belongs to disadvantaged groups (Alper and Goggin 2017), and different forms of exploitation realised and facilitated through the Internet (UNICEF Innocenti Research Centre 2009). The use of location tracking technologies in child protection products has also brought concerns on the rights of the child to privacy, freedom of movement, and participation (Lupton and Williamson 2017, Marx and Steeves 2010, Oostveen *et al.* 2014, Wrennall 2010). Like a double-edged sword, while technology can be a part of the problem (UNODC 2008a), the technological advances and appropriate utilise of data generated by new technologies can also contribute to improving children's rights. For instance, Schwab-Reese and other scholars (Black and Schwab-Reese 2018, Schwab-Reese *et al.* 2018) highlighted the potential use of online data in improving the research on child maltreatment. Similarly, media, Internet and social media have been widely used in preventing human trafficking by raising awareness of the public (UNODC 2008b). At the same time, new technologies can be used in combating child trafficking and relevant crimes. For instance, it has been proved that genetic tracing is extraordinarily powerful in fulfilling the right to justice of children who were subject of violence, including enforced disappearances, enforced conscription, the sale of children, and child trafficking (Harvey-Blankenship *et al.* 2010). Microsoft and its partners have developed a series of technologies that can be applied to combat trafficking, including PhotoDNA, Child Exploitation Tracking System, Computer Online

⁵ Ministry of Public Security (2009) '公安部部署打击拐卖儿童妇女犯罪专项行动 [Ministry of Public Security deploys a special campaign against crimes of trafficking in children and women]', 全国公安机关打击拐卖儿童、妇女犯罪专项行动 [National Public Security Organs' Special Action to Combat Trafficking in Children and Women], retrieved from <http://www.mps.gov.cn/n2255079/n2255231/n2255233/c3579140/content.html> (accessed: 15/05/2019).

Forensic Evidence Extractor and Guardian APP (Ball and W. 2015). Increasing reports on the application of technologies to combat child trafficking have also be observed in Chinese media (Li 2019; Zhang 2018). However, there is a dearth of study on the impact of the application of new technologies in the field of anti-trafficking on the protection and fulfil of the rights of the child.

This work aims to analyse, from a human rights perspective, the opportunities and challenges brought by applying new technologies to combat child trafficking and child abduction in China. In specific, it will answer the following two questions: First, what new technologies have been adopted in the field of combating child trafficking in China? Second, what are the opportunities and challenges brought by these new technologies from a human rights perspective? The article is composed of three sections. The first is dedicated to a discussion on the conceptual framework within which the application of new technologies are analysed and methodology of this study. It is followed by an introduction of three recently developed technologies applied to combat child trafficking, their operating models and their contribution to anti-trafficking activities. The last section highlights how the key human rights principles concerning children are challenges by the new technologies.

1. Conceptual Framework

‘Human rights-based approach is a conceptual framework for dealing with a phenomenon; normatively based on international human rights standards; operationally directed to promoting and protecting human rights’ (OHCHR 2014, 8). While there is a lack of universal recipe for the human rights-based approach, it has been deduced three essential attributes: First, as policy, programmes, and research are formulated, the main objective should be to fulfil, promote, and protect human rights. Second, the human rights-based approach identifies rights holders, their entitlements, and the corresponding duty bearers and their obligations, and works towards strengthening the capacities of rights holders to make their claims and of duty bearers to meet their obligations. Third, core principles and standards derived from international human rights law should guide all aspects of programme and research and response at all stages (McConnell and Smith 2018; OHCHR 2006, 2014). The human rights-based approach focuses on not only the outcome of policy or programme but also how the outcome is achieved (McConnell and Smith 2018, 7).

From this perspective, studying new technologies applied in China to combat child trafficking with human rights approach is advantageous.

First of all, although never explicitly referred, China has taken a holistic human rights-based approach in its national policies in responding to the crime of child trafficking. By implementing Palermo Protocol and CRC-OPSC, China's national plan of actions on combating of child trafficking⁶ is based on the '3Ps' paradigm, which is an internationally recognised framework of combating trafficking in persons in line with human rights approach. It consists of three pillars: prevention, protection and prosecution, accompanied by national and international coordination and cooperation (UNICEF Innocenti Research Centre 2009, UNODC 2009). States, China, in this case, shall take appropriate policy, legislative and operational measures to prevent child trafficking, protect victims of trafficking, and prosecute offenders, coordination all national and international stakeholders. Therefore, human rights are not heterogeneous theories to China's national policy on combating child trafficking; rather, protecting and fulfilling the rights of the child are one of the main aims of the policy.

The standpoint of this study is on human rights standards, which should guide all measures of combating child trafficking. According to the principle of primacy of human rights, human rights of trafficked children shall be at the centre of all efforts to prevent and combat trafficking and to protect and assist victims⁷. Moreover, States must ensure that anti-trafficking measures do not adversely affect the human rights and dignity of persons, in particular, of the trafficked children⁸. As subjects of this study are actions concerning children, key principles emphasising on children's rights, contained in Convention on the Rights of the Child (CRC), include as a minimum the following ones (UNICEF Regional Office for CEE/CIS 2006, 11): the best interests of the child, non-discrimination, right of the child to be listened and taken into account, as well as the child's right to privacy.

The principle of the best interests of the child requires that in all actions concerning children, the best interests of the child should be a primary consideration⁹. Agents that take actions to combat child trafficking must make sure that the rights of the child are fully respected and protected.

⁶ See: State Council of China. (2007). 中国反对拐卖妇女儿童行动计划 (2008-2012年) [China National Plan of Action on Combating Trafficking in Women and Children (2008-2012)], and State Council of China. (2013). 中国反对拐卖妇女儿童行动计划 (2013-2020年) [China National Plan of Action on Combating Trafficking in Women and Children (2013-2020)].

⁷ United Nations, Economic and Social Council. (2002). 'Recommended Principles and Guidelines on Human Rights and Human Trafficking', *Report of the United Nations High Commissioner for Human Rights to the Economic and Social Council (Addendum)*, E/2002/68/Add.1, Para. 1, retrieved from <https://undocs.org/E/2002/68/Add.1> (accessed: 01/06/2019).

⁸ Ibid. Para.3.

⁹ CRC, article 3.1.

When the best interests of the child victims are in conflict with those of other individual or a group of children, the weight of the interests of all parties must be balanced carefully on a case-by-case basis¹⁰. The principle of non-discrimination requires States to respect and ensure the rights of the child without discrimination of any kind¹¹. It implies that trafficked children with different national, ethnical, sexual, religious, social and other background are entitled to exercise their rights equally. It also suggests that actions of combating child trafficking affect to all the trafficked children and potential victims without discrimination of any kind. Children from different origins are entitled with equal access to the measures of protection and prevention. The third principle suggests that the child who is capable of forming his or her own views have the right to be listened and taken into account in matters affecting him or her¹². It is especially important where decisions are made on the trafficked children, for instance, regarding return to the family of origin. The privacy and identity of the child and his or her family shall be protected according to article 6 of the CRC. It is essential that actions aiming at combating child trafficking take measures to avoid the dissemination of the victims' information, which can lead to identification. Policy, law workers, as well as private agencies that provide technics of combating the crime of trafficking and assistance to child victims shall ensure that the children's information is adequately protected, and their activities do not cause risk of damage to the safety and reputation of the trafficked children.

Among international agreements, there are two legal definitions that refer to child trafficking, the Palermo Protocol which defines 'trafficking in persons' and the CRC-OPSC which defines 'sale of children', both of which conceptualise the global phenomenon of child trafficking in legal terms. According to Article 3 of the Palermo Protocol, trafficking in children means the 'recruitment, transportation, transfer, harbouring or receipt of a child for the purpose of exploitation'. 'Child' means 'any person under 18 years of age'. The term 'the sale of children' is defined in Article 2 of the CRC-OPSC as 'any act or transaction whereby a child is transferred by any person or group of persons to another for remuneration or any other consideration'.

In the Chinese legislation, the due to the deep influence of by historical criminal activities on abduction and sale of women and children (W. Yang 2008), relevant crime is named 'abduction and sale of children'. In Article

¹⁰ UN Committee on the Rights of the Child (2013) 'General comment No. 14 (2013) on the right of the child to have his or her best interests taken as a primary consideration (art. 3, para. 1)', CRC /C/GC/14, para. 39, retrieved from <https://undocs.org/CRC/C/GC/14> (accessed: 01/06/2019).

¹¹ CRC, article 2.

¹² CRC, article 12.

240 of the current Criminal Law (revised in 1997)¹³, the ‘abduction and sale of children’ is defined as ‘any act of abducting, kidnapping, buying, selling, transporting, or transferring a child for the purpose of selling the victim’.

Although China criminalises the offence of trafficking in persons, it has been criticised by human rights experts that its legal framework is not yet comprehensive¹⁴. It is undeniable that the Chinese legal framework prohibiting and prosecuting crimes of trafficking in children and the sale of children needs to be improved in accordance with international standards (Liu 2010, Liu 2003, Pan 2012). This article will not be distracted on the legal issue. The definitions of trafficking in children and the sale of children in international treaties are confounded within the same legal term in Chinese legislation. The only definition similar to trafficking in persons of Palermo Protocol is that contained in article 240 of Criminal Law, which is, however, closer to the definition of the sale of children defined in CRC-OPSC. It is followed by article 241, which prohibits the purchase of child victim of child trafficking defined in article 240.

The definition of trafficking in persons of the Palermo Protocol is reflected partially in several separate crimes in the Chinese legal framework, including Articles 240¹⁵, 241¹⁶, 244¹⁷, 262¹⁸, 358¹⁹, 359²⁰ and 234A²¹ of Criminal Law. The main Article 240 does not clearly or precisely define the constituent elements of the offence in line with the Palermo Protocol. Instead of three elements, namely action, means (irrelevant for trafficking in children), and purpose, the Chinese definition has only two elements: action and purpose. The most serious inconsistency between the Chinese and international definitions is within the purpose element. In the Chinese legislation, the purpose element

¹³ Adopted in 1979 and amended in 1997 by the National People’s Congress.

¹⁴ UN Committee on the Rights of the Child (CRC). (2013). Concluding observations on the initial report of China submitted under article 8 of the Optional Protocol to the Convention on the Rights of the Child on the involvement of children in armed conflict, adopted by the Committee at its sixty-fourth session (16 September–4 October 2013), 29 October 2013, CRC/C/OPAC/CHN/CO/1, at para. 11, retrieved from <https://undocs.org/en/CRC/C/OPAC/CHN/CO/1> (accessed: 28/09/2019). See also UN Committee on the Rights of the Child (CRC). (2013). Concluding observations on the combined third and fourth periodic reports of China, adopted by the Committee at its sixty-fourth session (16 September–4 October 2013), 29 October 2013, CRC/C/CHN/CO/3-4, at para. 87-88, retrieved from <https://undocs.org/zh/CRC/C/CHN/CO/3-4> (accessed: 28/09/2019).

¹⁵ Crime of abduction and sale of women and children.

¹⁶ Crime of buying abducted women or children.

¹⁷ Crime of forced labour.

¹⁸ Crime of abducting children and organizing people with disabilities and children for begging or engaging in criminal activities.

¹⁹ Crime of organising and forced prostitution.

²⁰ Crime of harbouring prostitution or seducing or introducing others into prostitution.

²¹ Crime of organising the sale and removal of organs.

is the ‘selling the child (or woman)’, which is similar to the purpose of ‘remuneration’ the sale of children defined in Article 2 of the CRC-OPSC²², rather than the purpose of ‘exploitation’ in the definition of trafficking in persons of the Palermo Protocol. In line with the article 3.c of the Palermo Protocol, it is not necessary to prove the existence of the means set forth in the definition of trafficking in persons.

Articles 240 and 241 of Criminal Law apply only to women and children. In addition, in the same context, a ‘child’ refers to a person under the age of 14²³, but not 18 as set forth in the CRC, the CRC-OPSC, the Palermo Protocol, as well as Law of the People’s Republic of China on the Protection of Minors. Therefore, female victims between 14 and 18 years old are treated as adult women, meaning that they are not entitled to benefit from assistance provided exclusively to child victims. In addition, China does not have a specific law on child trafficking or trafficking in persons, which can cause unfavourable consequences for the victims of trafficking and deviation in relevant data collection. Although Chinese Criminal Law criminalises acts of abduction, transfer and sale of children, the buying of children, as well as most forms of exploitation mentioned in the Palermo Protocol, they are dispersed in different articles in Criminal Law, regulations, and legal interpretations. The lack of a comprehensive anti-trafficking law would be detrimental to the identification of the crime of trafficking and the protection of the victims.

In this study, ‘child trafficking’ refers to the criminal offence defined in the Chinese Criminal Law. Child abduction refers to any act that that detach a child from his or her family or guardians by deception, luring or other means (Zhang 2016, 915), which is criminalised by Article 261 of Criminal Law of China.

2. Methodology

By adopting the human rights-based approach, the main objective of this study is to secure the better fulfilment of human rights. The focus of the article is primarily the technologies applied in activities carried out in China of combating child trafficking under the ‘3Ps’ paradigm in the last decades.

²² Article 2. For the purposes of the present Protocol: (a) Sale of children means any act or transaction whereby a child is transferred by any person or group of persons to another for remuneration or any other consideration;

²³ Supreme People’s Court of PRC. (2016). 最高人民法院关于审理拐卖妇女儿童犯罪案件具体应用法律若干问题的解释 [Interpretation of the Supreme People’s Court on Several Issues concerning the Application of Law in the Trial of Cases regarding Crimes of Trafficking in Women and Children], Interpretation No. 28 [2016] of the Supreme People’s Court, issued on 21 December 2016, entered in force on 1 January 2017, at Article 9, retrieved from <http://www.court.gov.cn/zixun-xiangqing-33641.html>.

After an explanation of the contribution of those technologies on specific aspects of combating child trafficking, that is prevention, protection and prosecution, an analysis on the challenges that those technologies bring to the respect, protection, and fulfilment of the right of the child. In specific, the analysis focus on the four key principles emphasising on children's rights, which, according to the principle of the primacy of human rights, shall not be contradicted.

The exploration on the new technologies applied in the ground of combating child trafficking is based on the qualitative analysis of a wide range of materials, including national policy documents, police reports and statements, reports and news articles on networks, the webpage of relevant organisations and service providers, as well as social media sources. More specifically, the organisation of reference is *Bao Bei Hui Jia* ('Baby Come Home' in Chinese, hereinafter BBHJ), which is the biggest NGO that offers online and offline tracking assistance for reuniting victims of trafficking with their families, cooperating with public security organs and private companies. Another key source of information is *Weibo*, one of the most popular social media in China. Material and data collection were mainly conducted in Chinese, and the key words were anti-trafficking (打拐), new technology (新科技), and facial recognition (人脸识别). The intention is to analysis new technologies applied to combat child trafficking in the last decade, after the issue of first National Plan of Action on Combating Trafficking in Women and Children (NPA) in 2008, while the technology itself might have been developed and applied in other areas.

Having noticed the limitation regarding the sources of materials, as many of them were governmental policy paper, official reports, and information online, the author holds that it will not create bias in assessing the challenges of the new technology brought to children's right. The available materials present the best aspect and interpretation of the fact, which means that the challenges and problems shall be more severe than what is disclosed in this study.

Applying technologies to combat child trafficking: the case of China

Prior to the development of the NPA, combating child trafficking relied mainly on people, with limited employment of technologies including Internet and instant messaging software (Wang 2000). While police detected criminal activities through monitoring messages of online chat, civil society used the Internet to trace trafficked children. There was no official database or network at national or local level regarding crime. However, the BBHJ has established a civil database of victims of child trafficking and other

missing persons through its website²⁴ and a huge network of 280 thousand volunteers across the country²⁵. It provides the biggest databank of victims of child trafficking, based on which the new technologies operate.

The information and materials published on BBHJ came from two different sides and created an 'H' shaped (Wang 2000) data collection and comparison mechanism (see Figure 1). Tens of thousands of information, grouped by 'victims' or 'original families', were posted on the website of BBHJ accessible for public consultation, including photographs of the missing person, year and of birth, year and place of disappearance, description of specific characteristics of the person or the family and of the incident. The basic operating model of BBHJ relies primarily on its website and networks of volunteers. The prerequisite of a successful match between the victim and his or her family is that both parties have posted information on the website, and it requires some luck that the information of either side can be noticed by the other side or the volunteers can connect their messages together. Since 2007, the BBHJ has posted information for over 400 thousand users²⁶ while only 2,952 persons have found their original family²⁷. Nevertheless, this time-consuming mechanism created a hub and platform for the following application of new technologies, as explained in the following paragraphs.

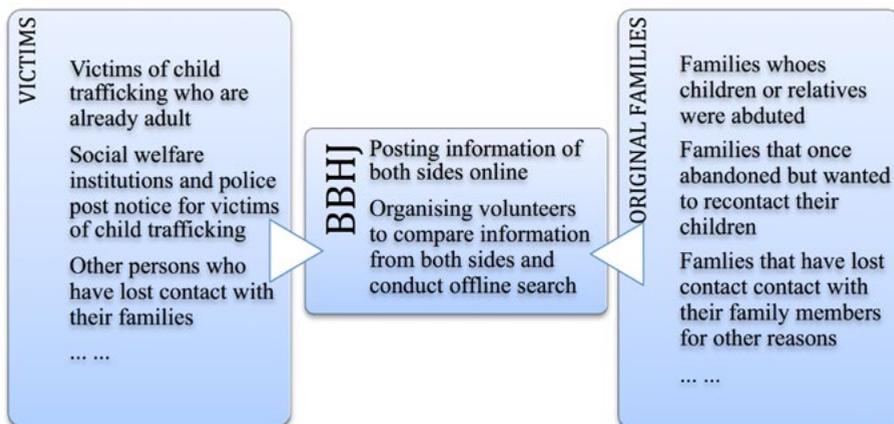


Figure 1 'H' shaped operating model of BBHJ

²⁴ See <https://baobeihuijia.com/Index.aspx>.

²⁵ Information provided by the administrative staff of the organization.

²⁶ China National Emergency Broadcasting (2018) '中国最大寻亲网引入“人脸识别系统”宝贝回家开启加速模式' ['Facial recognition' system introduced in China's largest person tracing website, BBHJ turned on acceleration mode], retrieved from <http://www.cneb.gov.cn/2018/02/05/ARTI1517833509790687.shtml> (accessed on 25/06/2019).

²⁷ Number of successful cases published on the website of BBHJ on 7 June 2019.

The biggest limitations of ‘H’ shaped mechanism is that it requires the participation of both sides – victims and their families, and the possibility to match the information provided from both sides. Frequently, key messages, including time of child abduction, place of origin, age of the victim when incident happened, and so on, provided by victims and their families are not the same. When the information provided by both sides are incompatible, it will be very difficult to match the victim with his or her family. This problem can be minimised by the application of new technologies, namely DNA text and facial recognition, which also operate in ‘H’ shaped mechanism, but rely on objective evidence. Another limitation is that the database of BBHJ can help only victims whose families are also looking for them. Differently, another new technology, the rapid response mechanism of child abduction alert does not rely on victims. It still needs, however, the report and cooperation of the victims’ families. All the three new technologies studied in the work cannot prevent the occurrence of child abduction, nor can they affect child trafficking committed by the parents of the victims. Their field of operation is protecting child victims by improving the remediation and preventing further harms by prompt reaction.

2.1 DNA Databank for Victims of Trafficking

In April 2009, as suggested by the founder of BBHJ Zhang Baoyan²⁸, a national DNA databank dedicated to anti-trafficking was established²⁹. As a key measure under the section of ‘cracking down the crime and rescuing victims’ in the NPA (2008-2012), its main function is to trace the original family of the trafficked child by genetic testing analysis. While the contribution of DNA databank is noteworthy in victim protection, it has very limited function in persecution and prevention.

This policy was given effect by an *ad hoc* national police anti-trafficking action³⁰ (Ministry of Public Security 2009) and relevant regulations³¹. In

²⁸ Guo Fengwen (2017) ‘秦艳友、张宝艳：宝贝回家之路 [Qin Yanyou and Zhang Baoyan: the road of babies going home (the road of BBHJ)]’, *Revolutionary Committee of the Chinese Kuomintang*, retrieved from: <http://www.mingge.gov.cn/n1/2017/1211/c415759-29699046.html> (accessed: 01/06/2019).

²⁹ Ministry of Public Security. (2009). ‘公安机关查找被拐卖儿童DNA检验技术应用规范（试行） [Application rules for public security organs regarding DNA testing technology to find victims of child trafficking (trial)]’, No.625 [2009] of the MPS Criminal Department, issued on 9 April 2009.

³⁰ Ministry of Public Security. (2009). 公安部部署打击拐卖儿童妇女犯罪专项行动 [Ministry of Public Security deploys a special campaign against crimes of trafficking in children and women]. *MPS*. <http://www.mps.gov.cn/n2255079/n2255231/n2255233/c3579140/content.html> (accessed 21/02 2019).

³¹ Supreme People’s Court, Supreme People’s Procuratorate, Instrumentalities of the State

this anti-trafficking action, police conducted a large-scale door to door visiting and survey, aiming to identify suspected victims of child trafficking and children with the unspecified origin. When a suspected victim of trafficking is identified, through police initiative or reporting to police, it is obligatory to collect his or her blood sample and put it in the DNA databank for comparison. In this databank, it is also collected the blood sample of parents whose children were missing. According to the 'Application rules for public security organs regarding DNA testing technology to find victims of child trafficking (trial)' formulated by the Ministry of Public Security (MPS) in April 2009, it is the duty of local police to collect the blood sample for victims' biological parents when it has been confirmed by police that their children were victims of child trafficking, or when the blood sample collection was required by the. In addition, blood collection for the anti-trafficking DNA database is obligatory for the following subjects: rescued child victims of trafficking; children of unknown origin and suspected of being trafficked; homeless children and child beggars from the unknown origin; and bodies of unidentified children. Criminal Investigation Bureau of the MPS and relevant DNA test laboratory, both public organs, are responsible for the management and maintenance of the DNA databank. The databank was initially a network of DNA laboratories of 32 provincial and 11 prefecture-level public security organs and was planned to connect all the DNA laboratories in the country³². The blood sample collection and DNA comparison are free of charge. According to information provided by volunteers of BBHJ, in practice, not only child victims can benefit from the DNA testing technology and databank. Also adults, who claimed to be trafficked when they were children, can use such facilities and service to look for their original families. After the establishment of the DNA databank, the volunteers of BBHJ also provide assistance and information to the registered users to have their blood sample collected.

Council, All Ministries, Ministry of Public Security, Ministry of Justice. (2010). '最高人民法院、最高人民检察院、公安部、司法部印发《关于依法惩治拐卖妇女儿童犯罪的意见》的通知 [Notice of the Supreme People's Court, the Supreme People's Procuratorate, the Ministry of Public Security and the Ministry of Justice on Issuing the Opinions on Legally Punishing the Crimes of Abducting and Trafficking in Women and Children]', Documents of Judicial Interpretation Nature, No.7 [2010] of the Supreme People's Court, issued and entered in force on 15 March 2010, retrieved from <http://en.pkulaw.cn/display.aspx?cgid=095d828db4ce796bbdfb&lib=law>.

³² Ministry of Public Security (2009b) '广东省公安厅动员部署打击拐卖儿童妇女犯罪专项行动 [Guangdong Provincial Public Security Department mobilized and deployed the Special Action to Combat Trafficking in Children and Women]', 全国公安机关打击拐卖儿童、妇女犯罪专项行动 [National Public Security Organs' Special Action to Combat Trafficking in Children and Women], retrieved from <http://www.mps.gov.cn/n2255079/n2255231/n2255233/c3579211/content.html> (accessed: 05/20/2018).

The DNA testing technology also operates in the 'H' shape. A successful match requires that blood sample of both sides – victims and parents – are ready in the database. Comparing to the human-based matching technics, the DNA test is faster, easier and more accurate. Being free from limitations from information obtained from subjects, which might be incorrect, unprecise and incomplete, the biological data can be used directly without concerning its authenticity and accuracy. Therefore, thanks to the DNA testing technology and databank, the number of successful cases of victim-family matching has significantly increased. By the end of 2018, the DNA database has helped 5,500 children reunited with their families (State Council Information Office 2018). One of the shortcomings of this technology is that the database cannot collect blood samples from neither all the child victims nor all the victims' families.

2.2 Facial Recognition Technology

In most of the cases posted by BBHJ, families looking for their missing children or vice versa, the incident happened years or decades ago. Years change the child victim into someone very different than the face in the dated photos that his or her family uses in their search. Cross-Age facial recognition technology can provide help. Equipped with facial recognition technology and huge database, the AI system is able to automatically integrate the traces of time and match a child with the adult he or she grows into³³. Tencent and Baidu, both mega Chinese multinational Internet technology companies, has developed the cross-age facial recognition technology dedicated to facilitating families to trace their abducted or missing children. According to the report, 'Tencent Youtu', a series of the product of facial recognition technology of Tencent, has reunited over eight hundred families³⁴. Similarly, Baidu also made a breakthrough in applying cross-age technology to combat child trafficking. In 2017, a 33-year-old man who was trafficked as a child found his family thanks to the online facial recognition system of Baidu³⁵. The BBHJ also offers an App named 'Age

³³ Tencent technology (2017) '腾讯QQ全城助力科技公益项目摘戛纳创意节中国首金 [QQ alert with the first Gold Lone prize for China in the Cannes Lions Festival of Creativity]', retrieved from: <http://tech.qq.com/a/20170621/016730.htm> (accessed: 09/06/2019).

³⁴ Xinhua Net (2019a) '腾讯优图突破“跨年龄人脸识别”，助力警方寻回被拐十年儿童 [Tencent "Cross-age facial recognition technology" helped police find a person who was trafficked ten years before]', retrieved from http://www.xinhuanet.com/tech/2019-05/04/c_1124447988.htm (accessed: 09/06/2019).

³⁵ Mail Online (2018) 'Chinese man, 33, abducted as a child finds his real parents after uploading a childhood photo onto a missing persons website that uses facial recognition technology', retrieved from <https://www.dailymail.co.uk/news/peoplesdaily/article-4492814/Man-33-finds-parents-help-facial-recognition.html> (accessed: 09/06/2019).

portrait (年龄人像)' which also works based on this technology. The App can identify the age stage of the person in the photo uploaded by the user and identify possible kinship between two samples. However, there are not any details on the technical supporter and achievement of 'Age portrait'. Some other small companies also created their own platform using the same technology, for example, 'AI Huijia (AI 回佳)' platform³⁶ and 'Zhongxun'³⁷, aiming to combat child trafficking and help families to reunite trace their missing children. The application of facial recognition technology to combat child trafficking also takes in the 'H' shaped data collection and comparison mechanism. On the one side, families of abducted children upload victims' photos to the facial recognition comparison platform, directly or through BBHJ. On the other side, victims themselves, police agents or social workers upload victims' photos in searching for their original families.

The boom of the application of facial recognition technology causes a series of concerns that have not been taken seriously yet. For instance, the 'Tencent Youtu' platform³⁸ invites the public to take and upload pictures of any suspected abducted children or person, according to their personal judgement, that they meet on the road. 'Zhongxun' not only invite people to upload photos of a suspected child victim but also post the result of the comparison, including the photos of the child, on their *Weibo* account. The right to privacy of the child who has been taken photos without his or her permission was infringed, and the privacy of any children on the public space is at risk.

2.3 Child Abduction Emergency Alert Platform

Another measure of combating child trafficking focus on preventing the crime and protect children through a rapid response mechanism to child abduction and disappearance. On the 15 May 2016, a Chinese Child Abduction Emergency Alert Platform (hereinafter Alert Platform), or the Chinese version AMBER Alert³⁹ system, was launched by the MPS⁴⁰, with

³⁶ On the "AI Huijia (AI 回佳)" platform users can upload up to five photographs of the person who lost contact with his or her family. The artificial intelligence will compare all the photos in their database and search for matching photos. See website: <https://www.pcijia.com/>.

³⁷ "Zhongxun" provides AI facial recognition service based on social media *Weibo*. See website: <http://www.zhongxun.life/>.

³⁸ See website of Tencent Youtu: <https://open.youtu.qq.com/#/open/solution/search>.

³⁹ See U.S. Department of Justice Office of Justice Programs, AMBER alert website: <https://www.amberalert.gov/about.htm>.

⁴⁰ Xinhua Net (2016) '公安部儿童失踪信息紧急发布平台上线 [Child Abduction Emergency Alert Platform of MPS was Launched]', retrieved from <http://politics.people.com.cn/n1/2016/0516/c1001-28352090.html> (accessed: 01/06/2019).

the technical support of Alibaba Group. Through a mobile application named 'Tuanyuan' ('family unification' in Chinese), five thousand anti-trafficking police officers, once receive child missing or child abduction report, can broadcast the alert immediately to the Alert Platform. The alert message contains key information of the missing child, including his or her physical features, photo, missing location, and time of the incident. The message of the missing child is sent to the official account of the Alert Platform on *Weibo*, one of the biggest social media platforms in China. In addition, the message will be sent to users of associated Apps and new media promptly. Within one hour of the child's disappearance, the information will be pushed to users within 100 km radius of the child's lost location. Within two hours, the area covered by the alert expanded to 200 km radius, then 300 km and over 500 km⁴¹. In two years, the application 'Tuanyuan' has been upgraded to 'Tuanyuan 4.0', connecting 25 new media and Apps⁴², including China National Emergency Broadcasting, Tencent News App⁴³, OFO (a global bike-sharing App), Alipay, AutoNavi⁴⁴, and Ele.me (a platform of online food delivery service)⁴⁵.

The Alert Platform has been very effective in preventing child trafficking. According to the latest data released by the MPS, in three years, Alert Platform has broadcasted 3978 alter messages and 3901 of them were retrieved⁴⁶. While more detailed data is available only for the year of 2018, released at the occasion of the second anniversary of the launch of the Alert Platform: in two years' time, 3053 messages of missing children were broadcasted, and 2980 children were retrieved, among which 48 were victims of child trafficking, 1705 children were running away from home, and 424 were lost

⁴¹ Ibid.

⁴² People.cn. (2018) '公安打拐不断升级: DNA比对、互联网平台 [The public security organs continue to upgrade the anti-trafficking measures: DNA comparison and Internet platform]', retrieved from <http://ln.people.com.cn/n2/2018/0525/c378326-31626817.html> (accessed: 01/06/2019).

⁴³ In Chinese "腾讯新闻客户端".

⁴⁴ 高德地图. AutoNavi, also known as Gaode Maps, is a Chinese web mapping, navigation and location-based services provider.

⁴⁵ People.cn. (2018) '公安打拐不断升级: DNA比对、互联网平台 [The public security organs continue to upgrade the anti-trafficking measures: DNA comparison and Internet platform]', retrieved from <http://ln.people.com.cn/n2/2018/0525/c378326-31626817.html> (accessed: 01/06/2019); and Beijing Evening News (2017) '儿童失踪信息紧急发布平台“团圆”3.0正式上线 [Missing Children's information emergency release platform "Reunion" 3.0 officially launched]', retrieved from http://www.xinhuanet.com/legal/2017-05/18/c_1120996401.htm (accessed: 01/06/2019).

⁴⁶ Xinhua Net (2019b) '公安部:“团圆”系统上线三年来找回近4000名失踪儿童 [MPS: The "Tuanyuan" system has been online for three years and has retrieved nearly 4,000 missing children]', retrieved from http://www.xinhuanet.com/2019-06/02/c_1124573835.htm?spm=C73544894212.P59511941341.0.0 (accessed: 01/06/2019).

(Wang 2018). Although victims of trafficking took only a small proportion, the Alert Platform effectively prevented over 2100 children on the run or lost way home to become victims of crimes such as child abduction or trafficking.

However, the Alert Platform has several limitations. The first limit regards on its effectiveness in combating child trafficking. As just mentioned, in two years it has helped 48 victims of trafficking and around 2000 children who might become victims of child abduction. The post hoc reaction mechanism, which was designed to combat child trafficking in China, in effect, cannot prevent the occurrence of child abduction and has very limited effect on combating child trafficking. In addition, the whole alert system relies on the Internet and smartphones. People who do not use smartphones cannot receive alert messages. More importantly, the alert does not pop up on the phones of people within the receivable range. If the person does not have or use the cooperating Apps when the alert is posted, then the message can hardly reach that person. Even though some of the cooperating Apps are very popular in China, it is very likely that their users miss the alert message considering the overwhelming amount of information in those Apps. For instance, the alert messages published on *Weibo* are not different from ordinary users' messages, which means the information can easily be overridden by other messages. The final concern regards the privacy of the child. As previously mentioned, the alert message contains detailed personal information of the missing child and his or her family, including name, sex, date of birth, home address, name of the school, and at least one photograph that shows clearly the face of the child. The author noticed that on the *Weibo* account of the Alert Platform, all the previous alert messages are still accessible to the public. In cases of children being retrieved, the police not only did not delete the information of the children but also issued a message explaining the reason for the child's disappearance.

3. Challenges to Rights of the Child

The new technologies applied in China to combat child trafficking has been highly evaluated in the country. The DNA test and facial recognition technologies can facilitate and accelerate family reunion when the conditions are met, and the Alert Platform can reduce the risk of children being violated. However, analysing from a human rights perspective, these new methods also bring new challenges that have been ignored. According to the principle of primacy of human rights, the measures to combat child trafficking cannot adversely affect the human rights and dignity of persons, in particular, the rights of children. As the measures concern

children, the States shall ensure that all measures as a minimum respect the key principles emphasising children's rights: the best interests of the child, non-discrimination, right of the child to be listened and taken into account, as well as the child's right to privacy (UNICEF Regional Office for CEE/CIS 2006, 11).

The principle of the best interests of the child requires that all the actions to combat child trafficking must make sure that the rights of the child are fully respected and protected. However, in reality, the priority of applying the new technologies was given to parents, to whom children are considered to belong. Although all the measures introduced in this article aim to combat child trafficking in a broad sense, their real underlying rationale and what they effectively promote is that children are subject of protection, instead of right holders, the safety of which shall protect at all costs. Using the DNA database and facial recognition as methods of combating child trafficking is based on the presumption that parents are looking for children desperately and child victims need to be returned to their family. However, in reality, a great majority of the child were sold by their parents (Li, Wang, *et al.* 2017, Wang 2015; Xing 2017). The *Notice of the Ministry of Civil Affairs and Ministry of Public Security on Carrying out Works of Adoption of the Rescued Child Victims of Child Trafficking Who Cannot Find a Biological Parents* issued in 2015 requires that when a child was rescued by police, the priority of the follow-up protection is to return the child to his or her biological parents. Those whose parents are found should be returned timely to their parents, even if it was proved that the parents were the perpetrator of the selling of their child⁴⁷. In front of parental rights, the rights of the child have been set aside.

As anticipated in the previous sections, the new technologies infringe the privacy of the child victims and children in general. There is no doubt that the current technologies did not take into consideration the privacy of children, in particular, the subject who those applications shall protect. According to Law of the People's Republic of China on the Protection of Minors, one of the principles of child protection is 'respecting the personality and dignity of minors'⁴⁸. However, the official account of Alert

⁴⁷ The State Council. (2015). '民政部、公安部关于开展查找不到生父母的打拐解救儿童收养工作的通知 [Notice of the Ministry of Civil Affairs and the Ministry of Public Security on Carrying out Works of Adoption of the Rescued Child Victims of Child Trafficking Who Cannot Find a Biological Parents]', No.159 [2015] of the Ministry of Civil Affairs, issued and entered in force on 20 August 2015, retrieved from http://www.gov.cn/xinwen/2015-09/18/content_2934413.htm.

⁴⁸ Article 5 The protection of minors shall comply with the following principles: (1) Respecting the personality and dignity of minors; (2) Fitting in with the law and features of minors' physical and mental development; and (3) Combining education with protection.

Platform post to the public all the personal information of the missing children, including those who were retrieved. In 1 June 2017, the Law on Cybersecurity of the People's Republic of China⁴⁹, which includes clauses on protecting personal information of users; however, the law has also been criticised for infringement of privacy and freedom of speech (Lee 2018, Yang and Xu 2018). The unnecessary disclosure of personal information might cause revictimization and infringe the dignity and reputation of the concerned children. The facial recognition applications of Tencent and some other private companies expose all the children at risk of being taken photos without permission by any user of the Apps. The right to privacy of children is infringed in the name of combating child trafficking and protecting children.

The new technologies per se are not discriminative. Persons of any social, economic, cultural and political background can refer to all the measures abovementioned if necessary. Nevertheless, in practice some people are excluded from or disadvantaged in employing those technologies, including people without possessing of smartphone or computer, people have no access to the Internet, people incapable of having access to those applications because of disability, illiteracy, or other restrictions. That is to say, the protection to children that should be brought to children cannot equally benefit children living in poverty or other disadvantaged conditions. There is no evidence that the right of the child to be listened and taken into account has been fulfilled in the process of decision-making or designing the Apps, neither in actions of so-called 'rescue', while it is an issue that also exists in fields other than combating child trafficking.

In conclusion, as measures to combat child trafficking and logically protect children's rights, the application of new technologies, from a human rights-based perspective, brings a series of concerns and adverse impact on human rights. As measures that concern children, they failed to respect the key principles emphasising children's right. While the failure to promote the right of the child to be listened and taken into account is a ubiquitous and institutional issue, the infringement of the right to privacy is rather a legal question which is avoidable in a relatively short period of time. In any case, it is necessary to highlight the shortcomings of these new measures in combating child trafficking and continuously improve them.

⁴⁹ Standing Committee of the National People's Congress, Standing Committee of the National People's Congress. (2017). '中华人民共和国网络安全法 [Cybersecurity Law of the People's Republic of China]', Order No. 53 of the President, issued on 11 July 2016, entered into force on 1 June 2017.

Conclusion

Child trafficking is a serious violation of children's rights that affects every country and the international community. China has taken a serious of measures to combat child trafficking, including the increasingly harsh penalty, ad hoc police actions of cracking-down child trafficking, and relatively comprehensive national action plans to combat the crime and protect the victims of trafficking. With the advancement of technology, new technologies began to be an innovative player in the field of crime prevention and victim protection. This article introduced three methods of adopting new technologies applied in the field of combating child trafficking in China.

There is no doubt that the new technologies have given the activities of combating child trafficking new vitalities; in particular, they have brought new hopes to families destroyed by traffickers. Both DNA database for victims of child trafficking and facial recognition technology have increased the possibility of families to find their abducted children, who have been missing for years or even decades. By reacting quickly to incidents of the child disappearance, the Alert Platform increases the detection rate of child abduction, and consequently protect children from further harm. However, it should be noted that all these measures are measures of remedy and victim protection, but not real preventive methods as claimed in some media coverage (Liu 2017). Limited by the 'H' shaped operating mode, none of these measures can be effective if the trafficked children's families do not report the case to the police, which happens in the sale of children by parents.

Beyond concerns on their effectivities, the application of new technologies brings challenges to key human rights principles concerning children. The first consideration of these measures is the safety of the child and custody of parents, rather than best interests and right of the child as an individual. All the three methods presented in this study aimed at bringing the abducted children back to their parents, wrongfully assuming that all the victims were trafficked against the will of their parents. However, the sale of children by parents, which is also prevalent in China, and the protection of victims of this trafficking mode was systematically ignored by the new methods. When a child was identified as a victim of child trafficking, he or she will be returned to his or her parents, without considering the condition of the original family and the best interest of the child. The collection of DNA and facial portrait data violate or put at risk the right to privacy of the child victim, while the Law on Cybersecurity of the People's Republic of China, which includes clauses on protecting personal information of users, was designed more for the State security and the State control over data and information. There is no evidence that the opinion of children has been consulted in the phase

of decision-making for the application of the new technologies, of which children are at the centre. By introducing advanced technology in the daily work of combating trafficking, children belonging to disadvantaged groups, who are more vulnerable to child trafficking, including children living in poverty, are at risk to be further marginalised.

As the main duty bearer, the Chinese government shall take necessary measures to prevent and combat child trafficking, whilst ensure that the measures do not adversely impact on the rights of children nor infringe human rights principles. Technology, as a new method introduced in the field of anti-trafficking, shall be guided and regulated, conforming to international human rights law and standards, as well as existing law such as Minor Protection Law. The accessibility of personal data of persons, especially children, shall be regulated and limited, so as to prevent the secondary harm to the victims of trafficking and their families. It is also necessary to clarify the responsibility of private companies in case of abuse of data, privacy violation, and causing other forms of violation of human rights. Finally, a comprehensive child protection system is the prerequisite of child-trafficking prevention, which should be achieved through the respect and fulfilment of children's rights and the empowerment of children to express views on matters affecting them.

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