Overview of identity documents in circulation in China

A fundamental assessment of identity verification for future practice
by Xiaoqiang Tan and Alison Liu

On 15 May 2012 the People’s Republic of China started its issuance of e-Passports to the country’s citizens. This pilot project - tremendous in terms of both geographical and population coverage - is concerned with introducing a globally interoperable biometric application into existing Chinese identity documents. To safeguard the trustworthiness of the e-Passport for international travel, a document had to be developed in compliance with ICAO specifications, to which dedicated team members from the Ministry of Public Security contributed. During the development it was a daunting task for the team to assess the security level of the identity documents that are in circulation today, and to establish if they are suitable for the identity verification process of the e-Passport application.

Current major Chinese identity documents

With a geographical area of 9.6 million km² and a population of approximately 1.3 billion, China is vast both in size and in the number of identity documents in circulation nationwide (excluding those issued by the two special administrative regions of Hong Kong and Macau). Two of these ID documents are used as primary sources for identity verification purposes within the country: the household registration booklet and the national identity card.

Household registration booklet

With origins in ancient China, the household registration system has been in place for the purpose of managing the residential status of individuals in defined areas. The system, which has evolved over the years, is still being used today for purposes such as the allocation of human resources between urban and rural areas.

A record in the household registration system officially identifies a person as a resident of a certain area. In general, the booklet is issued per family and includes identity information such as a person’s name, address and the relationship(s) with members of the same address. Since 1958, all citizens are required by law to register to the household registration authorities and inform the office administrated by the Public Security Bureau of changes in personal status, such as a new address or marriage, but also of any births or deaths in the family. The household registration information is maintained in national databases, and the integrity of the household registration record is enforced nationwide by cooperating authorities at all levels. It is still the most fundamental source for verifying a person’s identity, by dividing the huge population into family units.

National identity card

To complement the family-based verification, individuals are issued with a credit-card sized national identity card which contains vital information about the document holder. The card is allocated for life and has a unique 16- to 18-digit number - depending on the version of the ID card - denoting among other things the card’s place of issue, the date of birth and sex of the holder. The application for a national identity card has to be made in person at the designated centre of the applicant’s household registry. As regulated by the Identity Card Bill, all Chinese citizens aged 16 and over are required to obtain and carry an identity document to assist with daily activities, such as domestic travel and banking services. For minors under 16, an identity card is not obligatory; for them the household registration booklet still serves as the primary identity document.

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Nowadays, there are two versions of the national identity card in circulation in China. The earlier version or first-generation ID card has been in use since 1 October 1984. Limited by both technology and economic development in the ‘90s, the card contains only basic information and a low-resolution black-and-white portrait of the holder; it is protected by a polyester laminate with an anti-counterfeit laser logo (see figure 1).

Although it is not hi-tech, the first-generation national identity card has paved the way for public awareness that it matters to have a valid and secure identity document. In 1996, in a constant effort to upgrade the security level of the identity card, the relevant authorities started researching the possibilities of an improved identity document for better public services. In 2004, the second generation ID card (see figure 2) was officially introduced.

The second-generation ID card is considerably more secure and has a higher level of integrity compared to the earlier version. The card contains a chip, is laminated and machine readable, and is made of the polyester material PET, with security features such as rainbow, UV and micro printing. The embedded chip, which contains a digital photograph along with essential personal information of the holder, has been developed by the Chinese authorities and is tailor-made for national identification. From the introduction of this latest version in 2004 until the end of 2011, up to 1 billion cards were issued. It is well received by the public for all kinds of everyday procedures and is the primary identification document in daily life in China.

**Demands to increase security level of current ID documents**

Admittedly, when used on their own the household registration booklet and the national identity card have certain limitations. However, when used complementary, the documents can improve the level of security in the identity verification process. The Ministry of Public Security has therefore demanded this combination to be adopted in the e-Passport application process to ensure the most accurate identification as possible, and a pilot project has been started to accelerate the progress.

**Changes in procedures and additional data**

The e-Passport project has provided an opportunity to increase the level of security of the two documents by using both during the passport application process. Identity verification procedures have been amended to include a jurisdiction check and the use of an online photo examination centre, and additional data have been incorporated to complement the integrity of the applicant’s identity record.

**Jurisdiction check**

First, the identity verification process has been amended to include a jurisdiction check of the application acceptance. Authorities can only accept applications from citizens that are registered in their authorised jurisdiction(s). To check this criterion, both the original household registration booklet and the second-generation ID card are required. The machine readable data from the second-generation ID card will be retrieved and auto-compared against a number of databases. Information on both documents can be compared locally and cross-referenced to safeguard national security against international terrorist threats.

**Online photo examination centre**

Secondly, an online photo examination centre (see figure 3) has been designed in order to obtain a photo which is suitable for facial recognition. The service platform on the internet examines the size, quality and suitability of a digital passport photo, and subsequently submits the approved photo to the Exit &
Entry admission database. Applicants can upload their own digital photo, or visit a photo service point to have their digital photo taken, which is then submitted to the online examination centre. After the photo has been approved and submitted, the applicant will receive a receipt as reference (see figure 4), which they present to the admission officer who then retrieves their digital photo. Once the admission officer has verified that the information submitted on the application is consistent with the database comparison result, the digital photo is stored in the passport photo database. At the same time, the photo is automatically compared with photos in the second-generation ID database. The facial recognition is done to help verify whether:

- the applicant has applied for a passport at one or more different places (provinces) using the same identity;
- the applicant has applied for multiple passports using multiple identities.

These checks are done within seconds, and in case of suspicion the handling officer is alerted immediately.

**Collection of signature and fingerprint**

Thirdly, by law, an applicant’s signature and fingerprint images are now collected as additional identity data. This information serves to facilitate self-service border crossings at various Chinese ports of entries.

**Future practice**

The e-Passport project receives positive feedback and it is believed that the introduction of rigorous application procedures have strengthened the level of security of existing identity documents. It is the very first Chinese national identity document carrying its holder’s fingerprint information. By encompassing information from the household registration, the national identity cards, and the new passport system, the reliability of future identity verification processes will be enhanced. The determined efforts of the Chinese government to improve the security level of its national documents have paid off. An official upgrade of the level of security of current ID documents is expected to take place in 2013: all first-generation ID cards will be taken out of circulation and by law, fingerprint information will be incorporated into the second-generation ID card to improve identity verification and to facilitate daily life in China.

**Figure 3**
Portal of the online digital photo examination centre.

**Figure 4**
Receipt of an approved digital photo.