The Past, Present, and Future of Passports: Are We on the Right Track?

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A passport is a national identity document issued by the Government of a country. The holder of a passport uses it as an international travel document that certifies the holder's identity when the passport holder crosses the immigration and visits foreign lands. Thus, a standard passport should contain a person's attributes such as name, age, sex, date of birth, place of birth, and photograph that can uniquely identify the person.

Though the use of travel documents has a long history, the widespread use of passports as a means of travel documents has been started in the early 1900s. This is because, during that time more and more people started to visit from one country to another for different purpose such as trade, migration, and tourism. Early passports only included a description of the passport holder, such as name, sex, date of birth, and place of birth. Photographs began to be attached to passports as an identity of the passport holder in the early decades of the twentieth century, when photography became widespread. In addition to photographs, other forms of identification such as signatures, fingerprints had also been incorporated in the passports of different countries to avoid the fraudulent misuse of passports.

The paper-based handwritten passport (e.g., our current Bangladeshi passport) was the most common and stable form of passports for many years. However, passports issued by different countries were different from each other as there was no universally accepted standard until 1980. Traditional hand-written passports have the following major shortcomings: (i) these passports can be easily forged and thus very susceptible to be misused by un-authorized criminals, (ii) these passports require manual processing and matching the data contained in the passport with the passport holder, thus often results in inadvertent errors and delays in the immigration process, (iii) since different countries used different formats, the inter-operability was a major problem in communicating and exchanging information among countries.

To mitigate all these problems, after many years of discussions, in 1980, International Civil Aviation Organization (ICAO) finally standardizes and modernizes the format of the passport. Since the technology can evolve, they have also given the guidelines to store auxiliary data (which are optional) in various formats to keep pace with technological evolution.

A well-accepted standard which is now followed by the most of the countries worldwide is known as Machine Readable Passports (MRP). Intuitively, an MRP is a travel document that contains all the necessary data of a person in one of the pages (also called machine readable zone or MRZ) readable by a machine or Optical Character Reader (OCR).

Since machine readable passports have a sequence of lines that can be swiped/scanned (using an optical character reader) by customs and immigration officers, the passport holder's identity can be quickly verified. With one fast swipe, front line officers can pull up the information that they need to process legitimate travelers quickly. At the same time, this immediate information access will enable our officers to focus even more on identifying and interdicting potential threats. Therefore, MRP provides the following key advantages: (i) faster and reliable processing and verifying the passengers' data by immigration officers, (ii) greater protection against fraudulent misuse and tampering, and (iii) the reduced risk of identity fraud.

If an MRP has an embedded contactless chip, which contains data about the passport holder, a photograph (and fingerprints) in digital format, and data about the passport itself, then the travel document is known as an *e-Passport*. Many countries now issue e-Passports, where the main objective for the e-passports is to speed up clearance through immigration and the prevention of identity fraud, as theoretically it does not require any human intervention in the total process.

Although many countries issue e-/biometric passports, few have introduced the equipments needed to read them at the ports of entry. In the absence of an international standard, it is not possible for one country to read the information in passports issued by another country. Moreover, different loop-holes and security breaches in the associated technologies for e-passports have been discovered in recent years. The most recent fraudulent case in e-/biometric passports is the forged/duplication of UK and Australian passports by Israeli Intelligence. By realizing the increasing threat of forgery and misuse of passports, most of the countries who issued e-passports still prefer to check the passengers by manually checking the information as done with the MRP. Continuous research effort is also going on to overcome these threats.

Based on the above discussion, we can conclude that though e-passports have been emerged in recent years as a promising technology, it is still in its infancy. However, I believe that this technology will become more stable and will also become affordable to other countries in near future. Naturally, the question that came to my mind is, if a country adopts only the MRP, is it possible to adopt e-passports technologies when the necessity arises? The answer is yes. This is

because an e-passport is the addition of a new technology in the MRP. In the MRP all information are digitized and stored in a paper-based media; on the other hand in an e-passport, the same information is still kept in paper based format, in addition, the same information (mandatory) and some extra biometric identity information (optional) are stored in a small microprocessor chip. This chip is then embedded or attached to an MRP, and eventually the MRP becomes an e-passport.

So far we have discussed the past and present state of the art of passports. But what will be the form of future passports? We have seen unprecedented technological development in recent years. Thus it is very natural that the technology exists today will definitely be replaced by more sophisticated technology in future. So the form of passports is also bound to change to keep pace with the technological revolution. Therefore, irrespective of technological evolution, the common and most important thing that we need in future is a national database that contains updated biographical, biometric, and historical information of every citizen of the country. The national database will not only benefit us to easily adopt new technological change for the future passports, it will pave the way to build the foundation of each and every national project (ranging from an agricultural data management system to a crime data management system) that involves the citizens of the country. Once our country has an updated national database, it can easily share the information not alone among the port of entries but also with other countries through a secured network.

In the MRP project, we have already started collecting and storing all necessary information (biographical, biometric, and historical) of a person for issuing an MRP. Soon the citizens of our country will enjoy a hassle free travel abroad by using the MRP issued by our Government, which was a dream of any individual just a few months back. I hope in addition to all the benefits that the MRP can provide us; this project will also serve as a good starting point of the realization of our future national database. Therefore, in all aspects, the introduction of MRP is an important milestone for our nation and was the most pragmatic decision of the government.