Welcome to the Gemini IBD Infographics Newsletter [12-5-17] [VOLUME'3]

### THE OLD VS. THE NEW A LOOK AT THE BIOMETRIC PASSPORT

THE NEED -TRADITIONAL **PASSPORT IS RAPIDLY GETTING OUTDATED** 

The traditional paper passport, for many decades, has been the de facto standard for identification when you travel across foreign borders, apply for Social Security, prove your work status here in the United States, as well as applying for and obtaining other kinds of Security documents and ID cards (such as your driver's license).

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### HICH INCLUDE THE FOLLOWING

WHEN TRAVELLING ABROAD, NOT

**TOO MANY PEOPLE PAY ATTENTION** 

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#### THE FRONT COVER



PASSPORT

ed States

This is usually marked by a prominent color (such as blue for the United States, red for the United Kingdom, etc). It also gives the name of the issuing country, the kind of passport (such as diplomatic, foreign traveler, etc.), as well as the "Coat of Arms" from the issuing country.





This consists of the data page, which has specific information about the bearer of the paper passport and the issuing country. This page has been specifically designed of alphanumeric designators assigned by the issuing entity. Also, the visa for the country to be visited is often placed in this section, which is an adhesive label.

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### THE REQUEST PAGE



This is often the very last page in the paper passport, and it often consists of a message requesting that the issuee of the passport be allowed to travel in the country of destination, and in the event of any need, to be able to provide any form of assistance (especially legal/medical needs).

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The 100% production of totally counterfeit passports;

The issuance of a genuine paper passport to a fraudulent bearer (very often using a different name or alias);

Corrupt government officials issuing paper passports (this is a problem in the developing nations such as those in Africa and Asia);

The physical tampering of the paper passport;
The complete loss, theft, or hijacking of the paper passport.



Because the paper passports can be scanned in at the country of destination, these are also known as "Machine Readable Passports". But even with this, there can be further security flaws, such as tampering with the passport reader (in a manner which is similar to credit card

### skimming).

Because of these major vulnerabilities, the need has arisen for the Electronic Passport (aka the "e-Passport"), as well as for efficiency and speed in processing foreign travelers at the country of destination.



#### THE E-PASSPORT

• The e-Passport is also known as the "Biometric Passport". It is just like the traditional paper passport, but with one major difference: It consists of a microchip (such as those found in Smart Cards) which is embedded into the pages of the e-Passport.



The way to differentiate an e-Passport from other types of passports is the unique diagram which is found on the front of the e-Passport. It consists of the rectangle with a circle in it.





This microchip can contain the information and the data which is found in the traditional paper passport, but also various physical Biometric templates of the card bearer. The most often used templates are those of Facial, Fingerprint, and Iris Recognition. Either one, or a combination of all these three templates can be used to verify the identity of the e-Passport bearer.



IT SHOULD BE NOTED THAT THE INFRASTRUCTURE WHICH MAKES UP THE E-PASSPORT IS MUCH MORE COMPLEX THAN THAT OF THE TRADITIONAL PAPER PASSPORT. WITH THE LATTER, ONLY THE PASSPORT IS MANUALLY SWIPED INTO THE PASSPORT READER. BUT WITH THE FORMER, THE FOREIGN TRAVELER DOES NOT HAVE TO HAVE

THEIR PASSPORT MANUALLY SWIPED.



#### THE PASSPORT READER

Rather, the e-Passport is merely "flashed" in front of a reader. Thus, within seconds, the identity of the foreign traveler can be confirmed (without the need for a government official to be present), and he or she can be going onto their destination.



THE MAJOR COMPONENTS OF AN E-PASSPORT INFRASTRUCTURE

### THREE COMPONENTS REQUIRED



RFID Tag: These are very miniature tags which are also embedded in the e-Passport. In order to establish a network connection to the e-Passport reader, a wireless network protocol known as "Radio Frequency Identification", or "RFID" for short. The RFID Tag initializes the wireless connection from the e-Passport to the specific reader which is being used.



RFID Antennae: This is also embedded from within the e-Passport, and it transmits the Biometric Templates from the microchip to the e-Passport reader.

e-Passport Reader: These collect the Biometric Templates from the RFID Antennae and compares them to the templates stored into a database at the country of destination. Just like in any other Biometric application, if there is a positive match between these templates, the identity of the foreign traveler is confirmed. If not, a second try will be made, and if a third attempt is required, a government official will then intervene in order to fully verify the identity of the

person in question.

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The process is shown in the following diagram.

NOTE: "Border Crossing" means that the foreign traveler is allowed into the country of destination, whereas "Boarding" means that the foreign traveler has been allowed to board the mode of transportation back into their country of origin.

electronic



ABC (Gate) = Automated Border Cotnrol (Gate)

THE ADVANTAGES OF THE E-PASSPORT THE E-PASSPORT DOES CONSIST OF A NUMBER OF DISTINCT ADVANTAGES OVER THE TRADITIONAL PAPER PASSPORT.

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#### TIME SAVINGS



With the traditional paper passport, a foreign traveler can wait for a very long time to be processed manually by a government official. With the e-Passport, this same person can have their identity confirmed in just a matter of a few seconds.

# TOTALLY SECURE



The paper passport is very much prone to forgery, counterfeiting, illegal duplication, etc. With the e-Passport, this problem is 100% eliminated, because the original Biometric Templates have to be deleted before any new ones from a different individual can be registered onto it. Because of its flaws, the identity of the paper passport bearer may not be able to be 100% identifiable. But since Biometrics is being used with the e-Passport, the identity of this kind of passport holder can be 100% confirmed or denied, without any doubts in mind.



Since different Biometric Templates can be used (primarily those of Fingerprint, Iris, and Facial Recognition), a quick and easy multimodal security solution is offered. For instance, a foreign traveler can be confirmed or denied using all three of these templates, thus providing even greater assurances that the identity of the individual in question is genuine.

THE RISK PROFILE OF ANY FOREIGN TRAVELER CAN BE CONSTRUCTED AND STORED VERY EASILY, AND QUICKLY ACCESSED BY LAW ENFORCEMENT AS WELL. THE E-PASSPORT CAN GREATLY STREAMLINE AND MAKE MORE EFFICIENT THE OVERALL SECURITY PROCESSES OF AN INTERNATIONAL AIRPORT.

The longevity of an e-Passport is much greater, with a survivability rate of greater than 10 years.
Other kinds of information can also be stored into the e-Passport, and as a result, over 50 security details can be stored about the foreign traveler.
The e-Passport (and its different versions) are being used by 3.5+ Billion air, land, and sea

### travelers.

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- Over 20 Million border crossings occur on a daily basis with the e-Passport.
- 5,000+ e-Gates are being used to check the authenticity of an e-Passport holder.
- Out of the 900 Million total number of passports which are being used, 760 Million are e-Passports.
- 120 countries have adopted the use of the e-Passport.

• There has been a 31% increase in air travel due to the efficiencies offered by the e-Passport from 2012-2017.



• The total spending by the US Government on the e-Passport will reach \$1+ Billion by 2020.

• Facial Recognition actually provides a 30% higher accuracy rate of identification versus Fingerprint and Iris Recognition.

• 92% of foreign travelers have had their identity confirmed in less than 10 seconds when using the e-Passport.

• Over 3,000 passengers are processed here in the United States on a daily basis with the e-Passport.

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