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Agenda Item 16: Facilitation and Machine Readable Travel Document

EFFECT OF AUTOMATED IMMIGRATION CLEARANCE SERVICE

(Presented by the Republic of Korea)

EXECUTIVE SUMMARY

This paper provides information on Automated Immigration Clearance Service based on facial recognition developed to enhance aviation security and efficiency. It has evolved from the system using personal fingerprint information developed by the Republic of Korea (ROK) in June 2008. The test operation result in 2010 shows that the success rate of recognition reached beyond the initial goal and it reduced the average required time by 30%. Subsequently, it is expected to save passengers' time which totals to more than USD 1,275 thousand per year per year.

Strategic Objectives:	This working paper relates to Strategic Objectives B — *Security.*
Financial implications:	Not applicable
References:	Annex 9 — *Facilitation* Doc 9303, *Part 1-Machine Readable Travel Documents*

1. INTRODUCTION

1.1 An automatic and ubiquitous immigration service, using Machine Readable Passports and personal fingerprint information, was developed by the Republic of Korea (ROK) in June 2008. This system has greatly contributed to reducing the required time for both inbound and outbound passengers by 30% compared to that in existing procedures. In particular, this system is equipped with automatic departure, arrival, boarding and transfer functions. Moreover, it is very helpful to prevent unlawful interference such as passport swap.

1.2 According to ICAO Doc 9303 Part I, a Facial Recognition System is recommended as the first additional data format of passport, while fingerprint and/or iris images may also be stored as secondary biometrics information; therefore, in 2009, the new version of Automated Immigration Clearance System was developed to use facial information in electronic passports without pre-registration, and the operation test was finished in 2010 with great success.

2. AUTOMATED IMMIGRATION CLEARANCE SYSTEM PROCEDURES

2.1 The Automated Immigration Clearance System, a self-authentication means, has been developed in order to prevent the forgery and falsification of passports for security and to enhance the efficiency of immigration clearance process. It can be used in a variety of ways depending on its objectives. It includes a service model using fingerprints and facial recognition. The service model's security system (metal detector) enables simultaneous immigration clearance and security checking based on facial recognition.

2.2 The Automated Immigration Clearance System consists of four major process in the following steps:

a) Reading e-passport information: The system reads e-passport information of a passenger and stores the information until the completion of the process;

b) Determining clearance for entry: The system determines whether to allow entry into departure lobby or whether passengers are on the list of airlines and completed check-in process. In the case of departure or transfer, the system investigates the information to decide whether or not to open entrance gate in accordance with systems of the Korean Ministry of Justice and airlines. In other cases, it is used for a boarding process in which the information stored is verified by the transfer system and connected to airline systems;

c) The authenticating passengers' identities: facial recognition technology is applied as a basic means to authenticate passengers' identities, and the fingerprint is added in terms of security enhancement for departure process. Also, to increase the success rate of recognition, the light circumstances are optimized.; and

d) Completing immigration clearance: This function opens exit gate according to the result of e-passport reading and authentication of passengers’ identities.

2.3 Security check can run parallel with four major steps along with X-Ray check-up system and metal detector.

3. RESULT OF TEST OPERATION

3.1 The test operation of Automated Immigration Clearance System for passengers who have e-passport was conducted from July 1st to December 31st, 2010 at Incheon International Airport in the ROK. The test was designed to validate the goal of its recognition rate and its effect of reducing the required time for immigration clearance.

3.2 Initially, the goal of the recognition rate was set to 90%, and the test operation results reached beyond the initial goal. Furthermore, once the research project on the Automated Immigration Clearance System is completed, the recognition rate is expected to increase further.

3.3 Not only security was enhanced but also total required time for immigration clearance was reduced by 51.8%. Supposing that the average required time for the current immigration clearance with personnel to be 100% with the implementation of the system, the departure time was reduced by 70%. The boarding time decreased by 49% and the transfer time was reduced by 37%.

3.4 However, passengers' wrong posture of picture explains half of total recognition failures, and 30.5% of failures were caused by the erroneous e-passport not meeting ICAO regulation on issuing a passport.

4. EXPECTED EFFECTS OF THE AUTOMATED IMMIGRATION CLEARANCE SYSTEM

4.1 An automatic authentication can ease the burden and mistakes of both immigration personnel and passengers so it contributes to not only enhancing security but also increasing efficiency for immigration clearance.

4.2 In six-month period, the saved passenger time value amounted to USD 637 thousand. If used in continuous operation, this would amount to more than USD 1,275 thousand per year.

4.3 It is encouraged to note the experience and benefits of the Automated Immigration Clearance System in the ROK to enhance the efficiency in the facilitation of air transport service.

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