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SECURITY & FACILITATION

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ABC Systems: The RAPID project

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ICAO TRIP: Building Trust in Travel Document Security

SEF SERVIÇO
DE ESTRANGEIROS
E FRONTEIRAS



Why an ABC System:

- Increasing number of passengers at air borders
- Increasing time constraints (short transit connections between third country airports and other schengen airports)
- Stabilization of human resources in SEF
- Business case = Cost efficiency



RAPID Project:

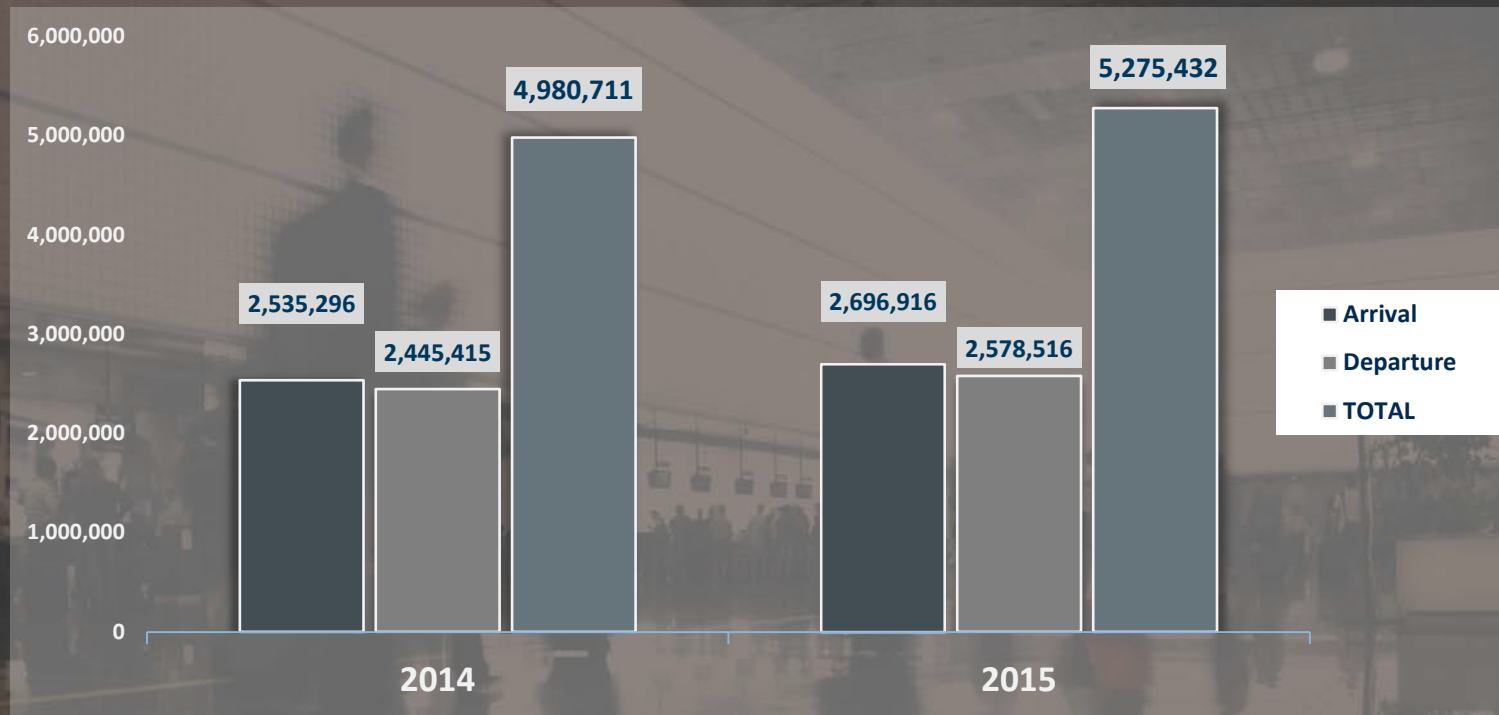
- As a component of the IBM strategy
- Multiplying effect (doesn't exclude human factor)
- Pilot Project 2007 in Faro Airport, supervised by Algarve University
- Progressively implemented in all international airports (except Santa Maria Island – Azores)



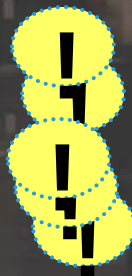
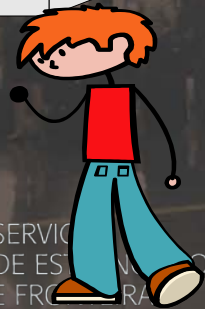
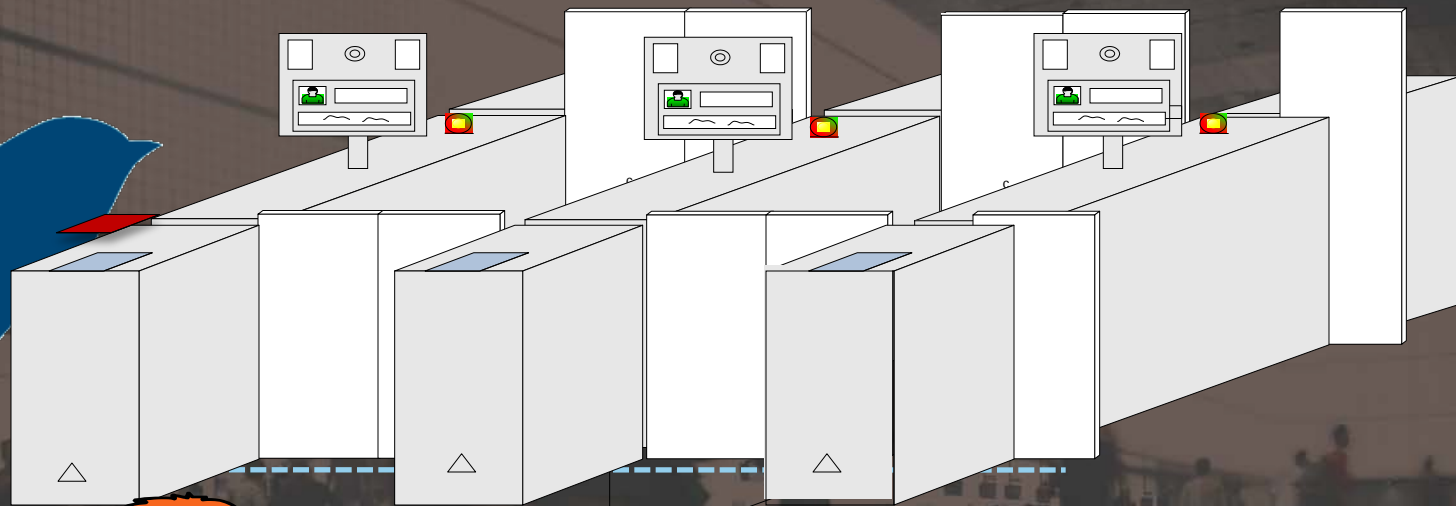
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- » The camera assumes the correct position (height) to take the picture;
- » The passenger places the e-Passport on the scanner;
- » The camera takes a "live" picture;
- » The system validates the document and "stores" the picture from the chip;
- » The system compares the "live" picture with the one stored in the chip;
- » Starts a DB check (national, SIS, Interpol);
- » The results of the DB checking are received;
- » If the document is valid, proceeds to the next phase; otherwise the passenger is asked to proceed to the "traditional" control booth and give personal data necessary to pass the border.



RAPID ELECTRONIC BORDER CONTROL

HOW IT WORKS - Requirements:

- 1- To be a citizen from European Union
- 2- Have an e-Passport
- 3- Not to be a minor (under 18 Years old)

And the System has to:

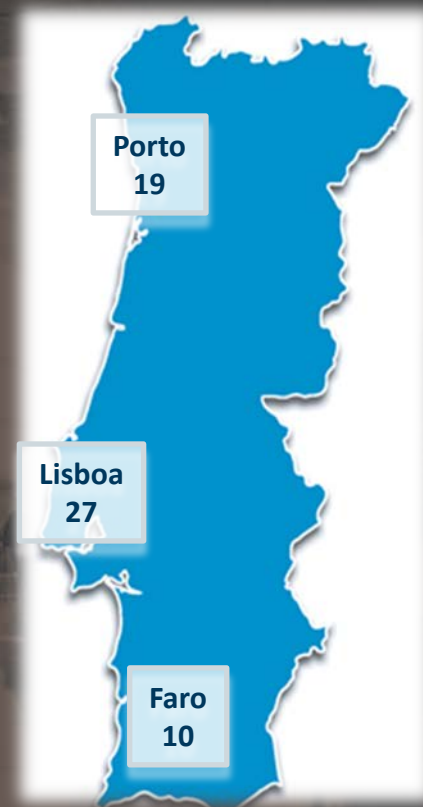
- 1- Accept the document as a genuine
- 2- Indicate No criminal record
- 3- Have a good facial recognition
(Fingerprint can be added)
- 4- “Man trap” solution





RAPID ELECTRONIC BORDER CONTROL

Gate distribution



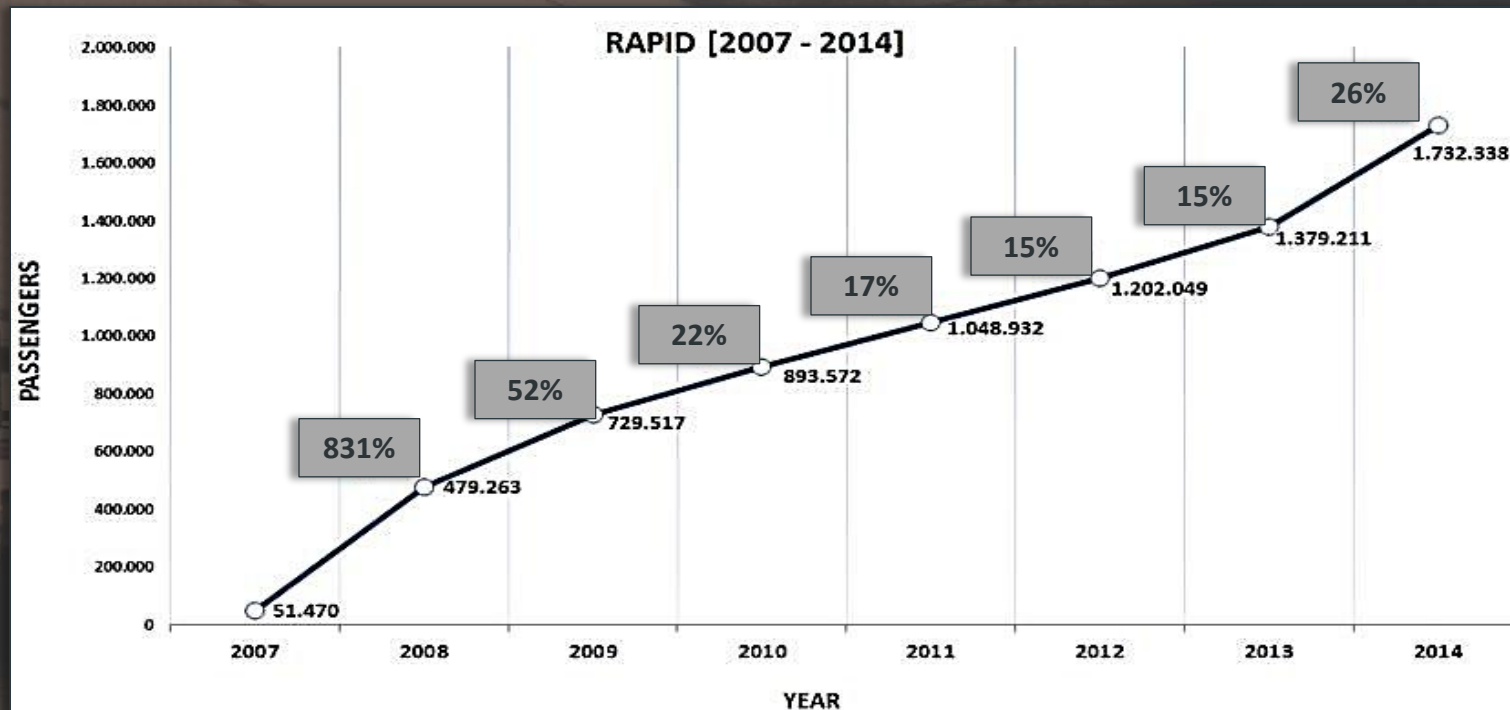


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Rapid Statistical Data:

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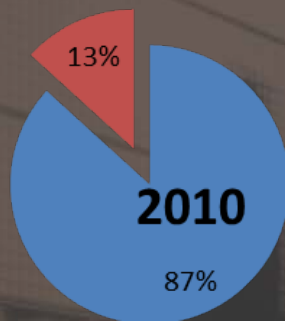
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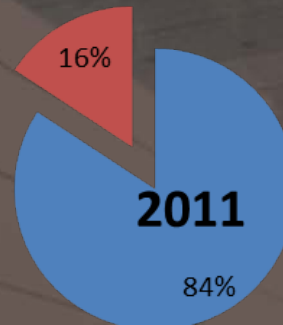


QUOTA RAPID



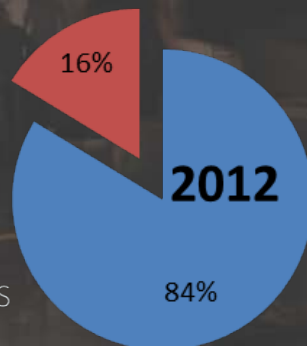
2010

87%



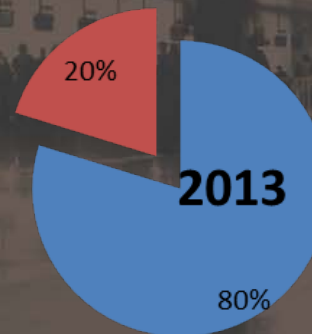
2011

84%



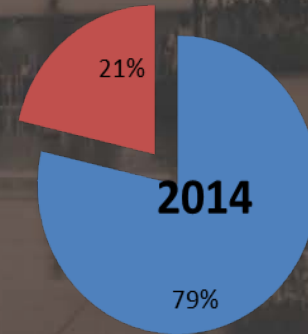
2012

84%



2013

80%



2014

79%

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Quality indicators:

- FRR: 6, 316%

- FAR: 0, 046%

- ATT: 10 secs





LAST STUDY

TARGET

- Validation of RAPID Facial Recognition (FAR/FRR)

TEST GROUP

- 125.833 pairs of photos (chip and live) captured in Lisbon airport between January-March/2012
- We have 83.484 distinct records (document number + country)
- 6.969.578.256 total comparisons



TEST GROUP BY NATIONALITY

ESP	2.807	2,23%
DNK	354	0,28%
IRL	1.140	0,91%
AUT	421	0,33%
ISL	34	0,03%
FRA	5.784	4,60%
BGR	42	0,03%
MLT	17	0,01%
GBR	12.510	9,94%
SWE	295	0,23%
ITA	7.036	5,59%
NLD	1.602	1,27%
NOR	993	0,79%
GRC	113	0,09%
CZE	131	0,10%

LTU	43	0,03%
D	2.580	2,05%
BEL	1.195	0,95%
SVN	64	0,05%
FIN	292	0,23%
SVK	44	0,03%
PRT	87.180	69,28%
LVA	30	0,02%
LUX	83	0,07%
HUN	262	0,21%
CYP	3	0,00%
EST	178	0,14%
CHE	348	0,28%
POL	252	0,20%



TEST GROUP BY GENDER AND AGE

Gender		
M	87.879	69,84%
F	37.954	30,16%

AGE		
18 a 29	27.404	21,78%
30 a 39	34.844	27,69%
40 a 49	28.883	22,95%
50 a 59	22.291	17,71%
>60	12.411	9,86%



RECORD DETAIL

- FIR (Facial Identification Record) extracted from photo
- Hash (Passport Number + Country)
- Country
- Gender
- Age group



First Results

	FRR (42)	Deviance against global result		FAR (42)	Deviance against global result
Global	6,316%			0,046%	
Male	5,254%	-17%		0,066%	44%
Female	8,579%	36%		0,079%	72%
Age 1 (18-29)	9,339%	48%		0,067%	47%
Age 2 (30-39)	6,084%	-4%		0,046%	1%
Age 3 (40-49)	5,260%	-17%		0,056%	21%
Age 4 (50-59)	4,812%	-24%		0,101%	121%
Age 5 (60-)	5,407%	-14%		0,205%	347%



"Best Score"

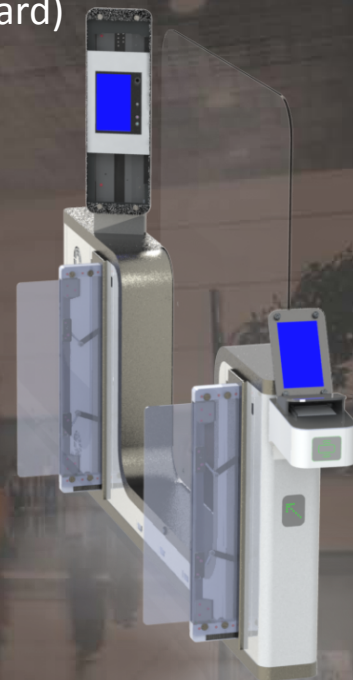
Score	FRR	FAR
30	0,5855%	0,4330%
31	0,7171%	0,3678%
32	0,8620%	0,3126%
33	1,0699%	0,2658%
34	1,3254%	0,2262%
35	1,6325%	0,1925%
36	1,9052%	0,1639%
37	2,2618%	0,1396%
38	2,7252%	0,1190%
39	3,2649%	0,1014%
40	3,9591%	0,0841%
41	4,9756%	0,0630%
42	6,3163%	0,0459%
43	7,8667%	0,0335%
44	9,4477%	0,0245%
45	11,1279%	0,0180%
46	12,9243%	0,0132%
47	14,7303%	0,0097%
48	16,6565%	0,0071%
49	18,5426%	0,0053%
50	20,3448%	0,0039%

Score	FRR	FAR
51	22,1565%	0,0029%
52	23,8901%	0,0021%
53	25,6942%	0,0016%
54	27,4048%	0,0012%
55	29,1307%	0,0009%
56	30,7136%	0,0007%
57	32,3060%	0,0005%
58	33,8813%	0,0004%
59	35,4833%	0,0003%
60	36,8869%	0,0002%
61	38,3267%	0,0002%
62	39,7036%	0,0001%
63	41,1893%	0,0001%
64	42,5547%	0,0001%
65	43,8382%	0,0001%
66	45,1255%	0,0001%
67	46,3498%	0,0000%
68	47,5380%	0,0000%
69	48,6956%	0,0000%
70	49,8131%	0,0000%



RAPID - EVOLUTION

- Passport Reader VB-EPR (all documents passports, citizen card)
- VB-ProAction[®] Sensor - Module Checking Safe Zone
- MILSIS[®] - Lighting Intelligent Face
- Slim and modern
- Live View from inside the gate by the Inspector
- No need ceiling sensors
- Use of telescopic doors last generation
- Mechanism physical restart of the gate
- VB-Biometric Unit – static periscope





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CHALLENGES:

- Certificates exchange
- Third Country Nationals legally residing in Portugal)
- Minors
- Pilot Projects (third country Nationals – Angola/Brazil)



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Thank you very much for your attention

Questions?

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Deputy National Director

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