

2nd End-User Group Meeting on 3D Face Recognition



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1. Fraport at a Glance

Our core business activities



33%

Aviation

701.1 mill. euros



29%

Ground Handling

624.1 mill. euros



18%

Retail & Properties

385.1 mill. euros



20%

External Activities

433.6 mill. euros

Frankfurt Airport – Our Home Base

- On an area of 16 sq. km, approx. 83 flight movements an hour
- 2 takeoff/landing runways + 1 takeoff runway
- 2 air terminals und 1 AIRail Terminal (ICE-train station)
- 128 flight gates
- 197 aircraft positions

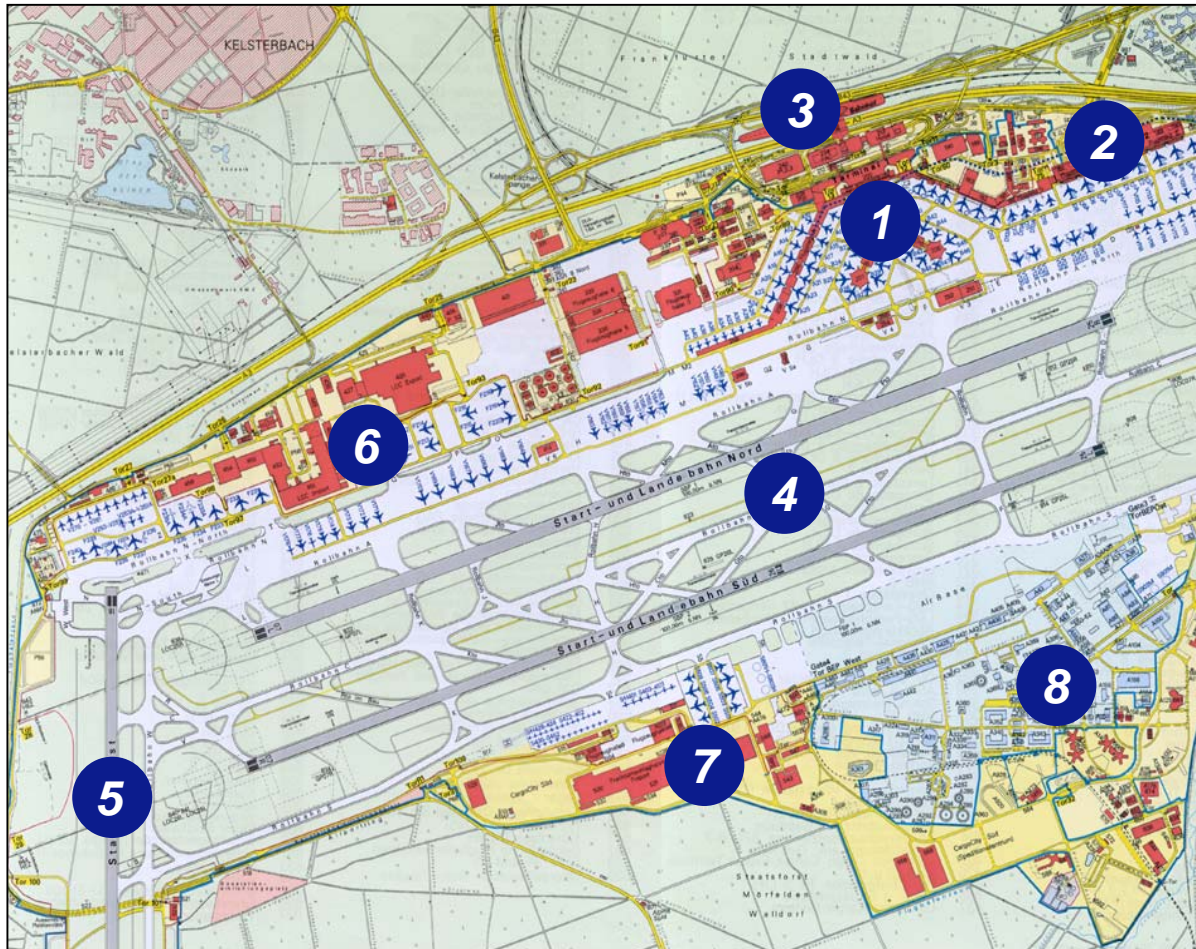
Every day*:

- 144,000 passengers
- 65,000 pieces of luggage
- 5,200 metric tons of cargo
- 380 trains at the airport railway stations




*Average Data 2005


Frankfurt Airport - Existing Infrastructure




1. Terminal 1
2. Terminal 2
3. High Speed Train
4. RWY's 07/25
5. RWY 18 W
6. Cargo City North
7. Cargo City South
8. Former USAF Air Base


Frankfurt Airport Traffic 2006


 Passengers 52,821,778

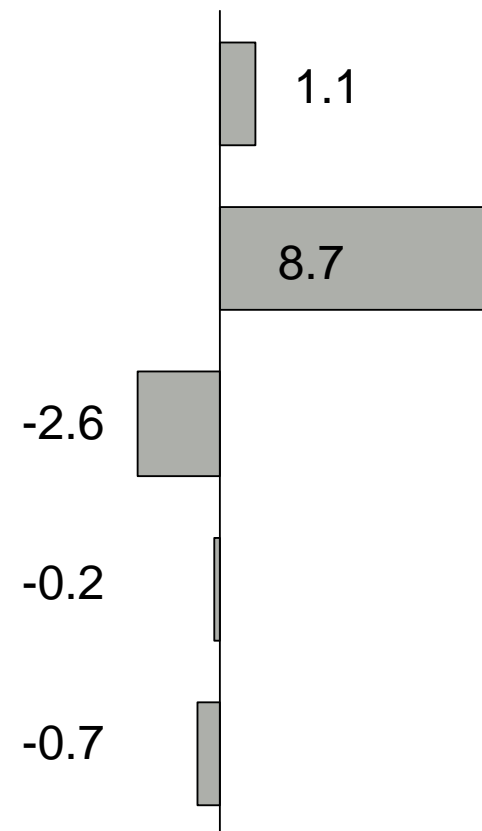

 Freight (t) 2,057,175


 Mail (t) 96,889


 Movements 489,406


 MTOW (t) 27,973,455

Change 06/05 (%)



2. New Challenges ahead

Airports have to continuously respond to new challenges

➤ **Capacity**

- Existing airport terminals do not cope with future aviation and non-aviation demands
- Meeting requirements of new generation of wide-body aircraft

➤ **Product**

- Creation of new revenues in aviation and non-aviation sectors (e. g. retail, real estate)
- New business models of airlines (e. g. product differentiation)

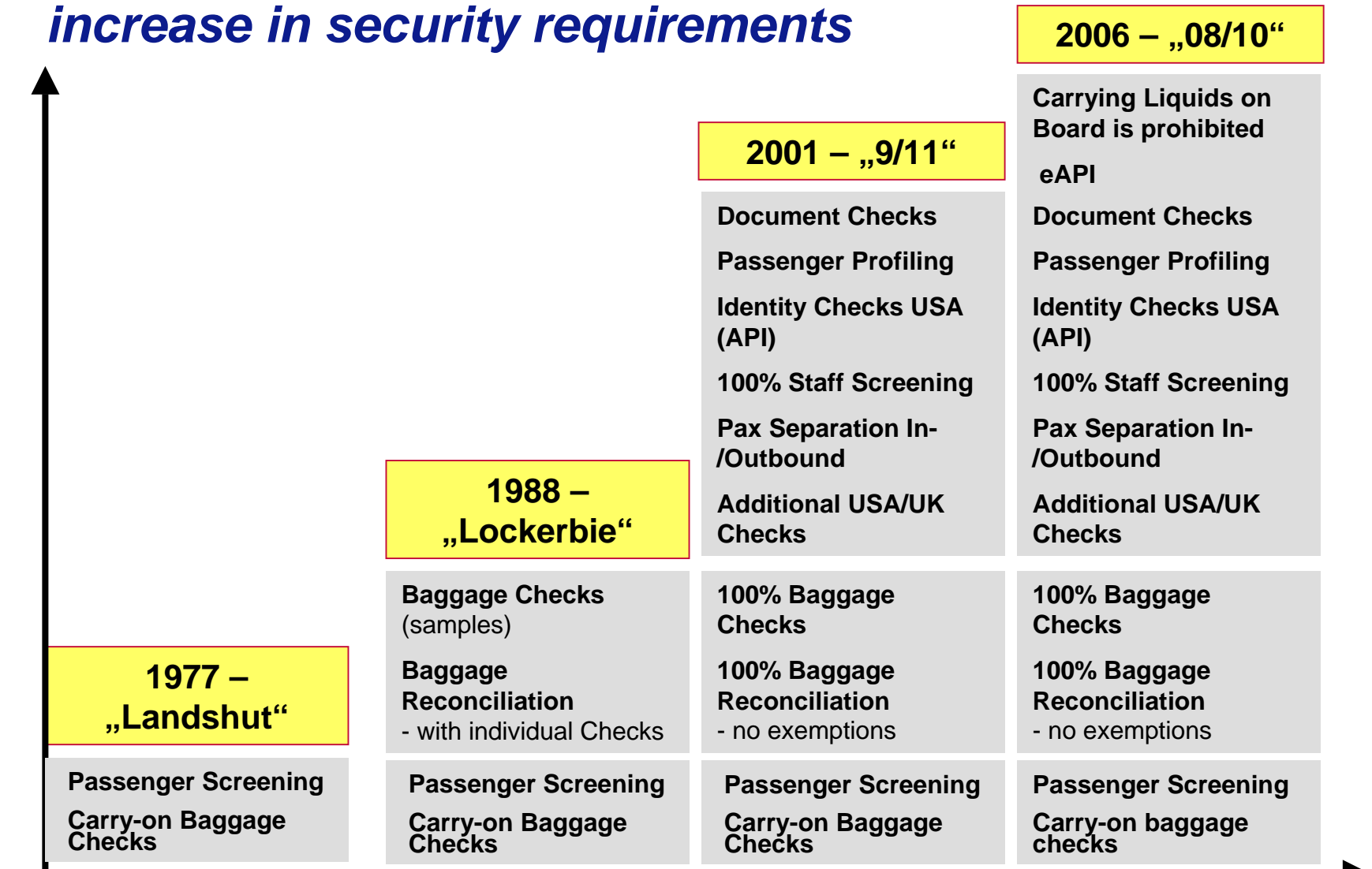
➤ **Cost efficiency**

- Optimal assignment of airport staff
- Cost-effective definition of design and layout standards
- Lean operational processes
- Usage of IT-Technologies to create efficient operational processes (e. g. automation)

➤ **Security**

- Steadily rising number of EU-Regulations due to current security situation worldwide
- Tightening security measures affect operational process times and costs

Airport infrastructure needs to adopt the dramatic increase in security requirements

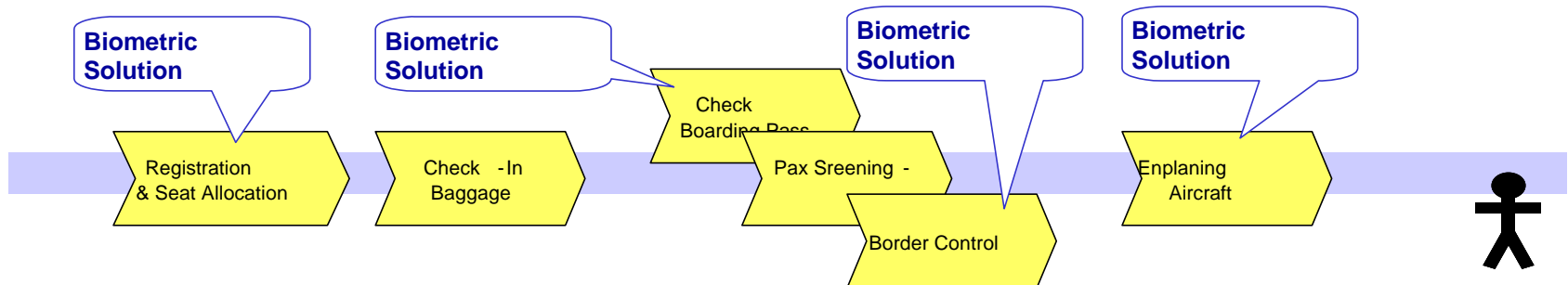


3. Can biometrics be the answer?

Potential range of Applications of Biometrics at Airports (1)

1. Use of biometrics within the *Passenger Process*:

- **Safeguard financial transactions (e.g. ticket purchase via web)**
- **Identity comparison for Check-in and Boarding Process**
- **Verification of identity for mandatory duties (border control)**



Potential range of Applications of Biometrics at Airports (2)

2. *Access control* for airport staff
for sensitive areas



3. *Automation of security surveillance*
(in accordance with rules and regulations of Privacy Law)



4. Biometric Projects - FRA

Project BioP II (Biometrics in Passports)

- Largest biometric comparative field-test ever in Germany to compare different biometric technologies involving facial, iris and fingerprint biometrics.
- Cooperation between German Ministry of the Interior, Fraport (1000 participants) and Lufthansa (1000 participants).
- Finalised in October 2004, results will affect further decisions of the German government towards the implementation of biometrics in the new passport.



Facial
recognition
by Cognitec






Iris
recognition
by SD-
Industries



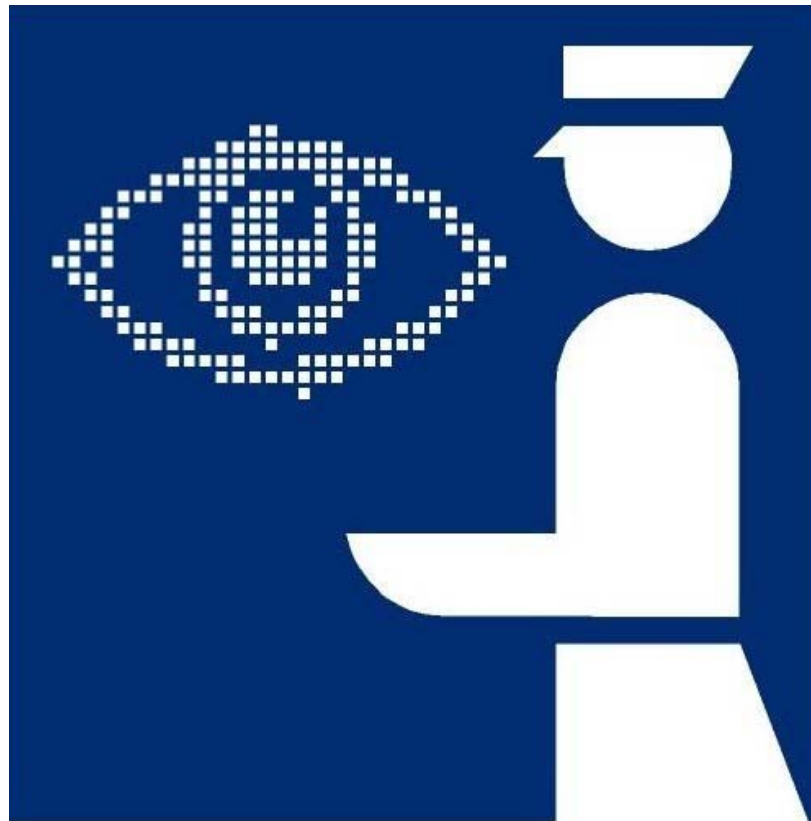
Fingerprint
recognition
by Dermalog
and NEC

Project BioP II - Results

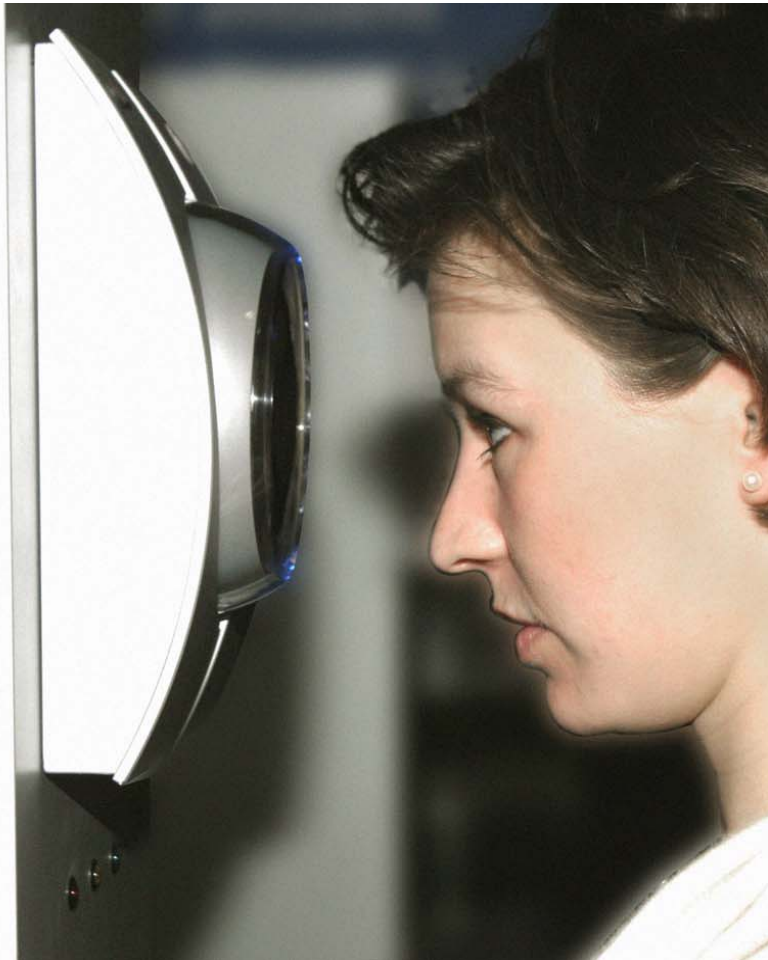
 1	<ul style="list-style-type: none">+ Best Recognition Performance+ High level of Security possible+ Stable sensors despite contact related application
 2	<ul style="list-style-type: none">+ Little training necessary- Homogenous illumination of ICAO picture needed- At high level of security non acceptable Rejection rate
 3	<ul style="list-style-type: none">+ High level of security possible- User difficulties for less experienced users- False Rejection rate significantly higher than stated („Myth of fixed limit“)

Source: Federal Office for Information Security, August 2005, Results of BIO P 2 – Project

Automated biometric Border Control - FRA



We guarantee seamless travel with improved security...



- Frankfurt Airport was the first German airport to introduce a biometric iris recognition system for passenger identification as a pilot project.
- Using the so-called iris scanning in border controls, we intend to prevent queues at the passport controls and to lower passenger stress levels.

Project Automated Border Control (ABG) – Goals

The pilot test is expected to give answers to the following questions:

- Are the procedure of ABG, the ABG-system and its components reliable ?
(security aspect)
- Are the speed of the process and throughput comparable with or even faster than the manual check ? (capacity aspect)
- Are the passengers willing to participate in the procedure/ service of the automated border control ? (acceptance aspect)

Project Automated Border Control (ABG) – Organization & Tasks

Project leadership BMI/ BGS



Bundesministerium
des Innern

BMI/ BGS

- Procurement of system
- Staff for ABG (enrolment and manual border control)
- Acquisition of other interested users



Lufthansa

- Acquisition of passengers (frequent flyers)
- Eventually provision for staff
- Passenger survey



- Provision for space (Enrolment center, border control)
- Provision for infrastructure (power, LAN, etc.)

Joint tasks

- Concept for external communication (passenger, media)
- Evaluation of results

Project Automated Border Control (ABG) – Facts

- **Number of enrollees: Since 2004 approx. 23.000 and still rising;
Eligibility: All EU-citizens and citizens of Switzerland with machine-readable passports**
- **Good system performance**
- **Very good acceptance by the passengers**
- **Pilot has ended in August 2007. System is now entering durable operation. Roll-out in other terminal areas is planned for 2008.**
- **Connection with other similar programs e.g. US NEXUS Air is being considered by the German Ministry of the Interior**



Autocontrol unit



ABG enrolment center

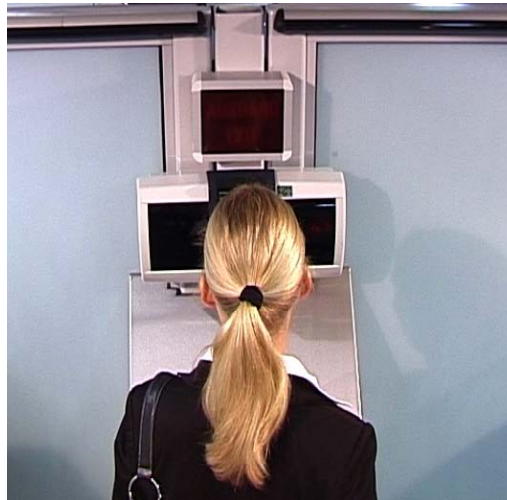
Project Automated Border Control (ABG) – Twin Autocontrol-Units, Concour B, Levels 2 & 3



Project Automated Border Control (ABG) – Components



**Capture data
Enter Autocontrol unit**



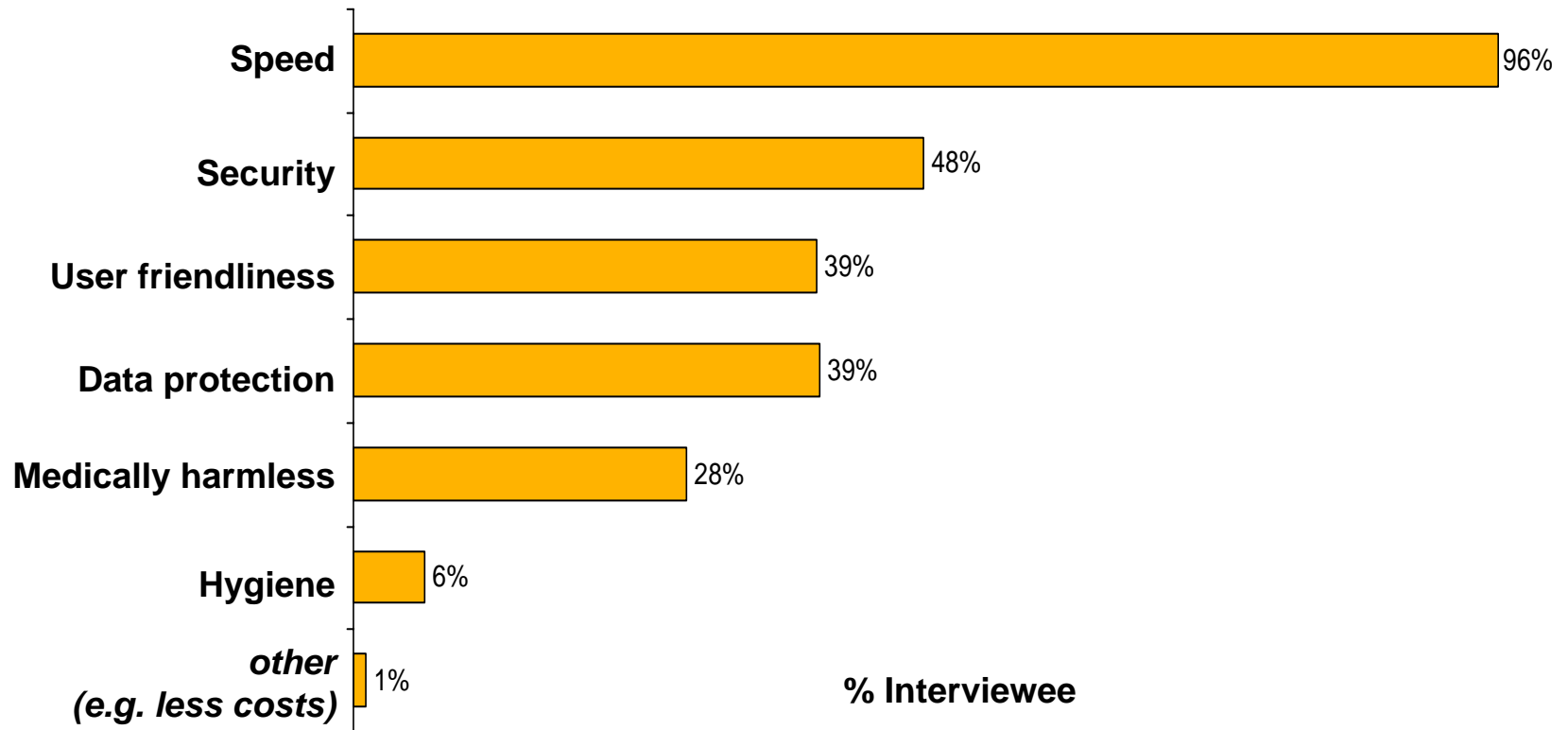
**Check ID
Iris camera inside
Autocontrol unit**



**Border Passage
Exit Autocontrol
unit**

Project Automated Border Control (ABG) – Acceptance by passengers

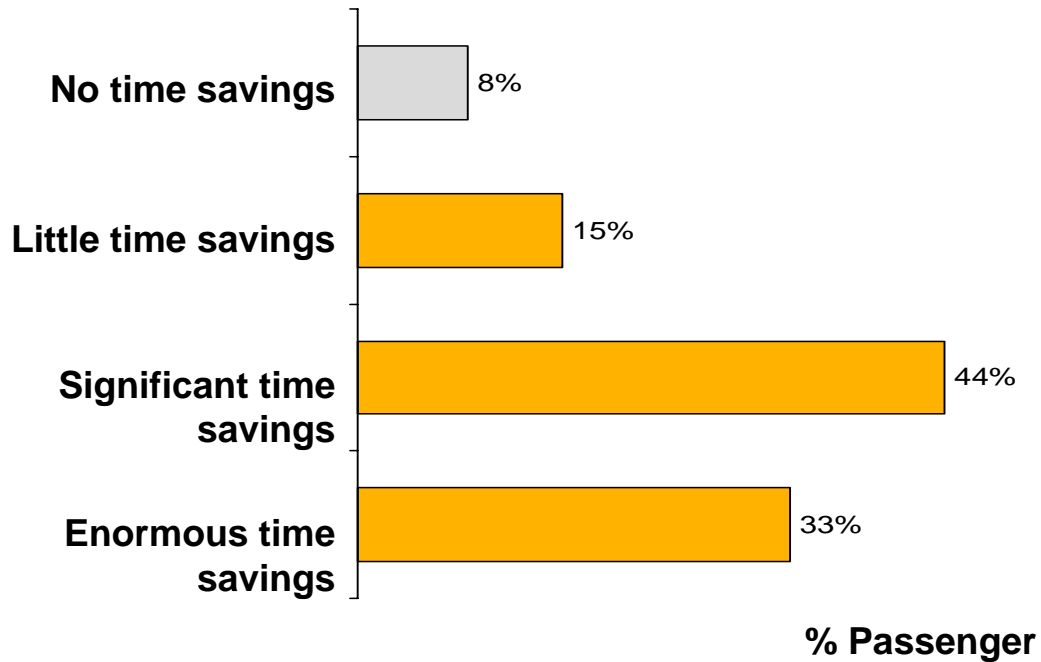
Passenger view of main aspects of biometric procedures



Source: Passenger survey ABG by Deutsche Lufthansa, July 2004

Project Automated Border Control (ABG) – Acceptance by passengers

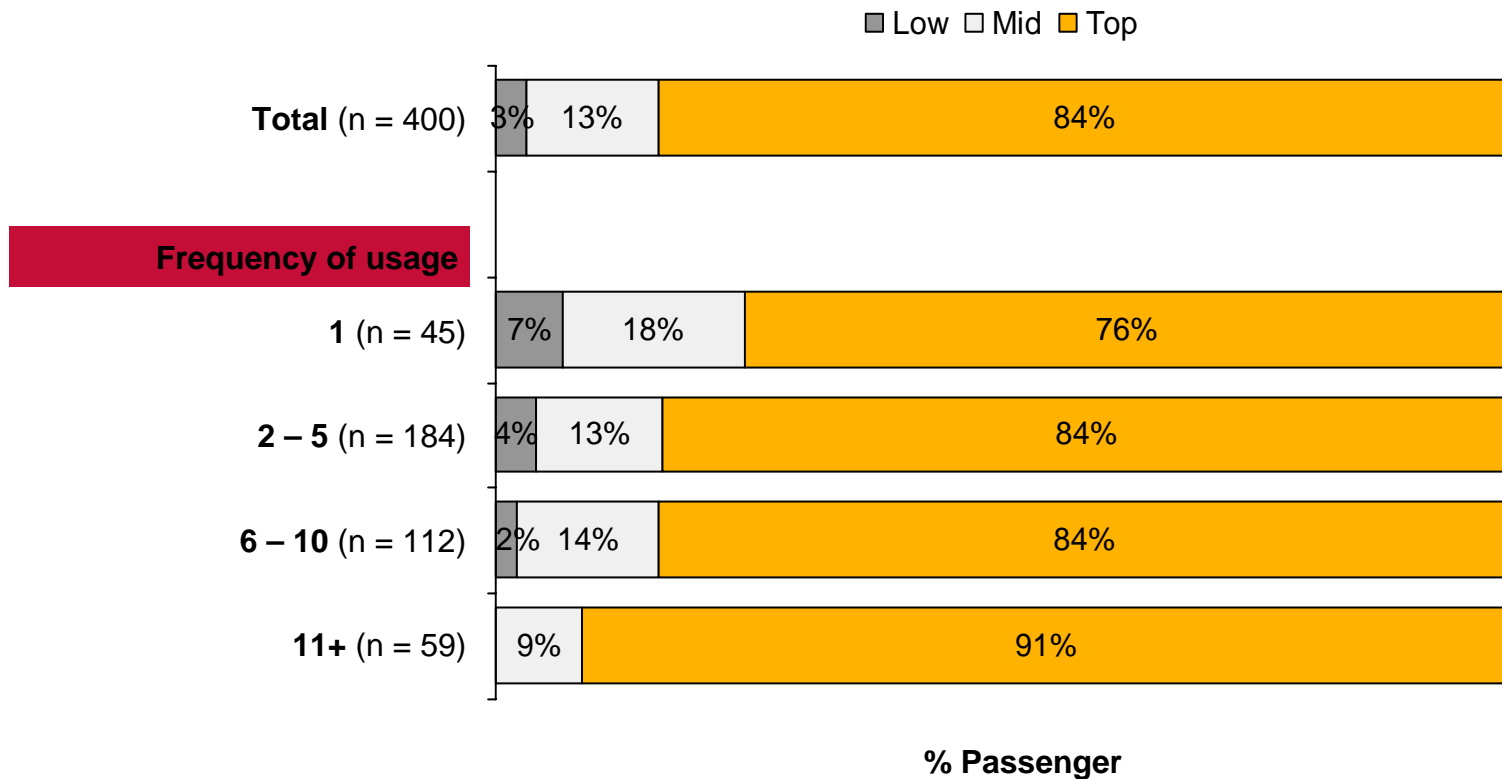
Passengers highly appreciate the time savings through ABG



Source: Passenger survey ABG by Deutsche Lufthansa, July 2004

Project Automated Border Control (ABG) – Acceptance by passengers

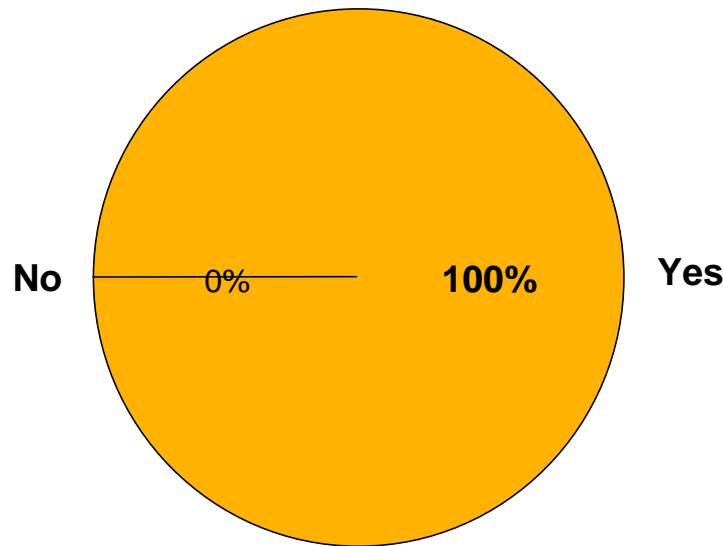
The more passengers use ABG for border crossing, the better they judge the product



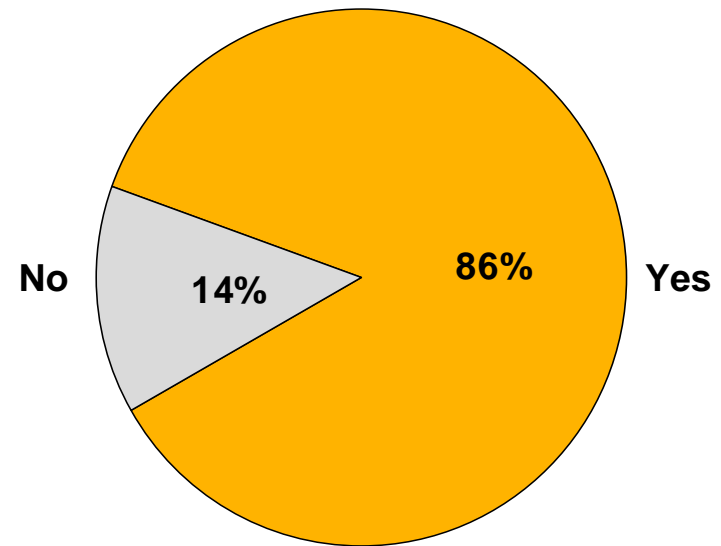
Source: Passenger survey ABG by Deutsche Lufthansa, July 2004

Project Automated Border Control (ABG) – Acceptance by passengers

**„Do you want to use
ABG in future?“**



**„Do you support the use of
biometrics at other stages of
the passenger process?“**



Source: Passenger survey ABG by Deutsche Lufthansa, July 2004

5. Experiences – FRA

High requirements & expectations for biometric systems

Fast !

Biometric systems must accelerate processes.

Secure !

Biometric systems must maintain the same level of security as do existing systems, or even higher!

Reliable !

Good FAR (False Acceptance Rate) and FRR (False Rejection Rate)

Fail-safe

High performance

Acceptable !

User-friendly, no hygienic problems.

Project results...Technical aspects

- Poor performance of conventional facial recognition compared with iris or fingerprint.
- Performance of optical systems (Iris and face recognition) depends heavily on constant light. Outdoor deployment of such systems is therefore problematic.
- FRR depends on the cooperation and experience of users.
- User interface must be improved to achieve more comfort. Good visual and auditory user guidance can contribute a lot to reduce FRR.
- Until now no experiences are made with the constancy of biometric characteristics over long time periods

Project results...Project development

- Each biometric project is an individual, customized development.
- Lack of standards for biometric systems implicates high cost and time risks.
- Implementing biometric processes/ systems in existing airport infrastructure can entail high unpredicted additional expenses .

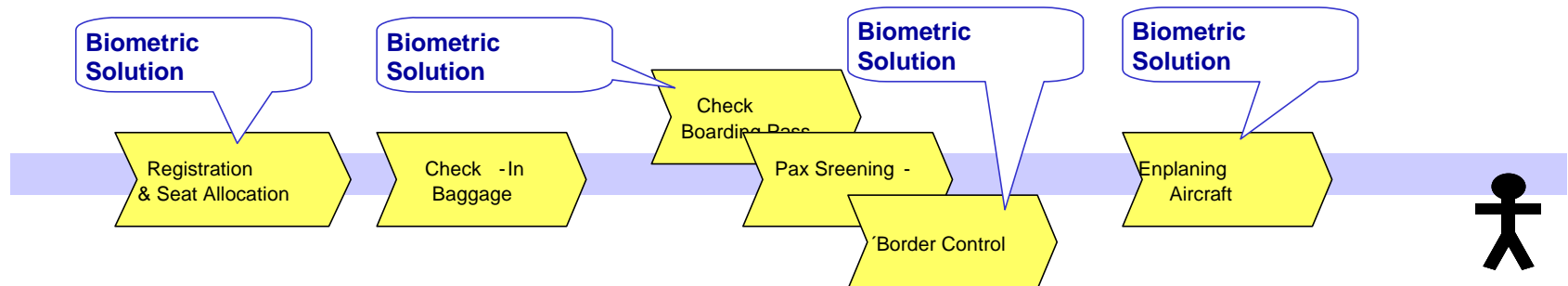
6. Conclusion

Conclusion

- **Vision: „Single Technology Infrastructure“**
One definite Standard for both passenger processing and staff access
- **Vision: „Off-the Shelf“ Biometric System**
which can be easily adapted to an existing infrastructure
- **Vision: “One Biometric Media”**
for all reasons, at all kind of places for secure transactions and authentication of persons (pax und staff)
- **Vision: “Simple “Way to Use”**
no high effort for user guidance is needed and the performance is independent form user cooperation

Conclusion

- Integration for the different processing steps and most important establish strong cooperation between the parties involved
 - **Vision: Fully integrated and automated „One-stop-check“, without redundant collection and check of identical passenger data!**





"It's not the strongest of the species that survives, nor the most intelligent, but the one most responsive to change!"

Charles Darwin

Thank you for your attention!

Fraport AG

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