Artificial Intelligence & Cybersecurity in Aviation Security (Current and Future)

January 28, 2020
Saudi Arabia’s Civil Aviation Aspirations

**Vision**

- Maintain a **safe air-transport system** in accordance with **highest international safety standards**, and build **state-of-the-art airport systems** with **modern and advanced services**

**Mission**

- **Develop air transport** through construction, management, provision, operation of airports and air navigation infrastructure in accordance with the **most advanced systems** and **international standards**. Adopt the necessary **rules, regulations, and procedures** that ensure safety and security of air transport.
Saudi Arabia provides a growing economy, highly skilled large manpower base with an advanced infrastructure.

- **Total Population**: 33.4 million
- **Nominal GDP**: $748 billion
- **GDP Per Capita**: $22,650
- **FDI Inward Stock**: $264 billion
- **Population Growth Rate**: 2.5%
- **Percentage of Youth (Under age of 30)**: 50%
- **Saudi Labor Force**: 5.7 million
The General Authority of civil Aviation plays a major role in achieving the Vision 2030 Objectives

**Positioning**
- Enable the development of the **Tourism sector ~ 100M visits annually**
- Increase capacity to welcome **Umrah visitors** from **8M to 30M**
- Raise country's **Logistics Performance Index** from **49th to 25th** and ensuring to position KSA as a **global logistics hub**
- Increase **private sector participation through privatizing airports**

**Considerations**
- Aviation strategy should be aligned to **tourism strategy**, **National development industrial program**, as well as the plans of **Giga projects, Regions, Quality of Life**

**Targets**
- KSA airport capacity aims to more than **double current airport**
- Focus on **RUH & JED** as the backbone of Saudi airports
When compared to the global aviation market, KSA’s aviation sector is profitable

**Aviation services**

<table>
<thead>
<tr>
<th>MRO</th>
<th>Fuel operator</th>
<th>Ground handling</th>
<th>Catering services</th>
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</table>

**Airlines**

- **Profitable**
- **Highly profitable**

**Airports**

- **Profitable major airports**
- **Profitable** small airports

### Key players

- **Saudi Arabia Airlines (SA)***
- **APSCO***
- **SGS***
- **SAUDIA***
- **Flynas***
- **King Khalid International Airport***

### Market landscape

**Near Monopolistic situation**

- 1 dominant player
- 2 small players

**Monopolistic situation**

- 4 domestic airlines
- +140 foreign airlines

- 26 gov. owned airports
- 1 fully privatized (Medinah)

### Current Profitability

- **Profitable LCCs**
- **Highly profitable** FSCs

**Positive**

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Source: Team analysis; CAPA; CapiQ; IATA; Company reports; Albastross; OAG

1. Statistics from global benchmarks (incl. Germany, UK, Turkey, France)
Examples of how security and immigration could look in the future

<table>
<thead>
<tr>
<th>Pain points</th>
<th>Key features to address pain points</th>
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<tbody>
<tr>
<td>▪ Long queues</td>
<td><strong>Key features to address pain points</strong></td>
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<tr>
<td>▪ Need to take out the ID</td>
<td><strong>Facial recognition / biometric technology for immigration</strong> providing the passenger with on unique facial ID</td>
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<td>▪ Separation from non passengers (relatives/friends)</td>
<td><strong>3D baggage scanners</strong> removing the need to take out liquids and electronics at security to reduce queue time</td>
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<td>▪ Having to take off belts, shoes, electronics, liquids etc.</td>
<td><strong>Facial recognition at gate to replace boarding pass scan</strong> and using the unique passenger facial ID to let them go ahead with boarding. One or more gates (depending on the flight) will be dedicated to first, business and elite members of airlines programs</td>
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<td>▪ Limitations in terms of liquid volume (regulatory)</td>
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**Examples of airports using this feature:**
- Several US airports (incl. Orlando, New York, Miami), Beijing, Dubai
- Heathrow, Schiphol, Hartsfield-Jackson in Atlanta and Chicago O’Hare.
As we move into the future, Riyadh airport is assessing a range of technologies to advance airport security.

### Current technologies
- **(NIPASP)** - National Integrated Project For Airports Security And Protection: new Security Modern System and equipment in one platform serving all 27 airports
- **(NACC)** - Controlling 27 Airports from one point from the National Aviation Control Center
- **SACS** - Security Access System
- **HBS/SSCP** - Hold baggage system / Security screening check point
- **PIDS** - Perimeter intrusion detection system and intelligent lighting system
- **CCTV** - (Close circuit television) to protect the airplanes and airports

### Near future
- Biometrics-enabled ID identification replacing check-in and bag drop desks
- Advanced scanners that can scan through liquid and electronics
- Facial recognition / biometric technology for immigration providing the passenger with one unique facial ID
- Facial recognition at gate to replace boarding pass scan and using the unique passenger facial ID to let them go ahead with boarding

### Foreseeable future
- Wearables used by airline and airport employees to improve efficiency:
  - smart sunglasses and smart bracelets to track passenger activity and monitor how passengers prefer to shop, eat and spend their time in an airport
- Biometrics-enabled seamless ID identification replacing check-in and bag drop desks immigration desks
- Security technology breakthroughs (scanners built in walls)
- IoT enabled assets tracking for vendors to airport