CABI TOURISM TEXTS

2nd Edition

Tourism Information Technology

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COMPLIMENTARY TEACHING MATERIALS

Chapter 7

Aviation and Information Technology

Chapter 7 Learning Objectives

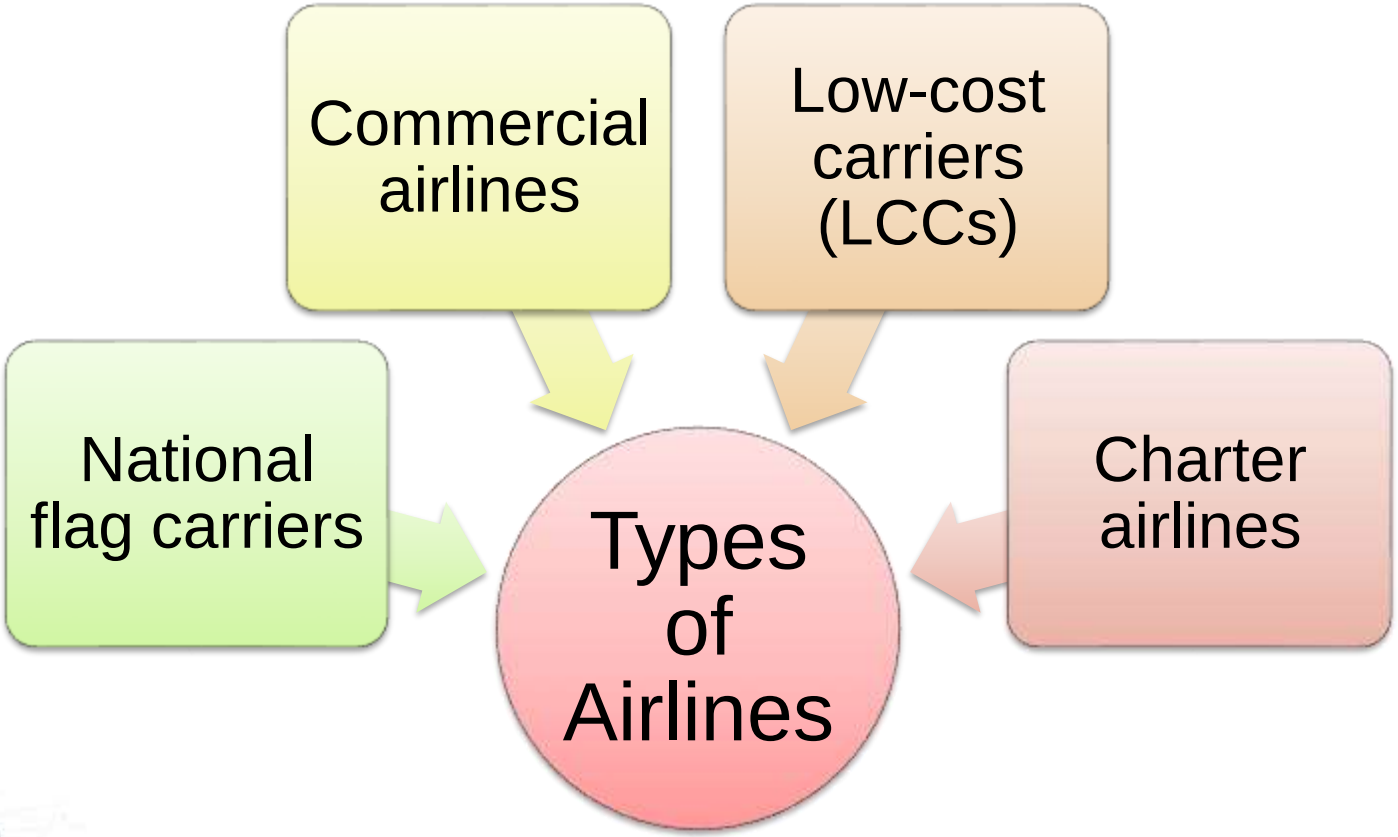
After studying this chapter you should be able to:

1. analyze the impact of IT on airlines and air travelers;
2. explain how airline reservation systems work and how they connect with other information systems;
3. understand how information systems support management decision-making in airlines;
4. examine how information technologies are used by airports to streamline the passenger experience; and
5. evaluate the present and future information technology applications in airport operations.

Key Concepts

- Airline reservation system (ARS)
- Baggage handling system (BHS)
- Customer relationship system (CRS)
- Fare Quote System
- Flight Information Display Systems (FIDS)
- New Distribution Capability (NDC)
- Passenger name record (PNR)
- Passenger Service System (PSS)
- Revenue management system (RMS)
- Safety Management System (SMS)

Types of Airlines



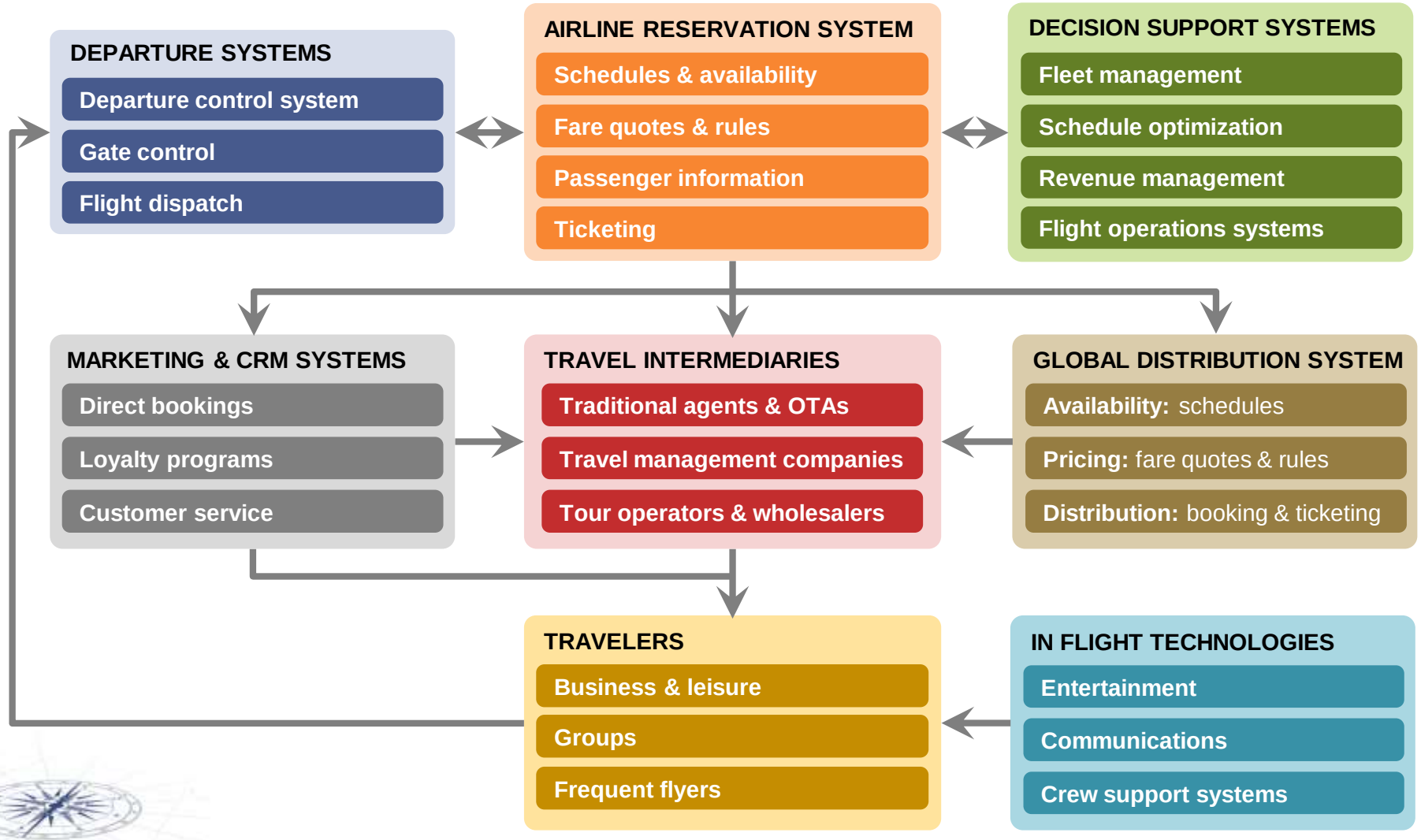


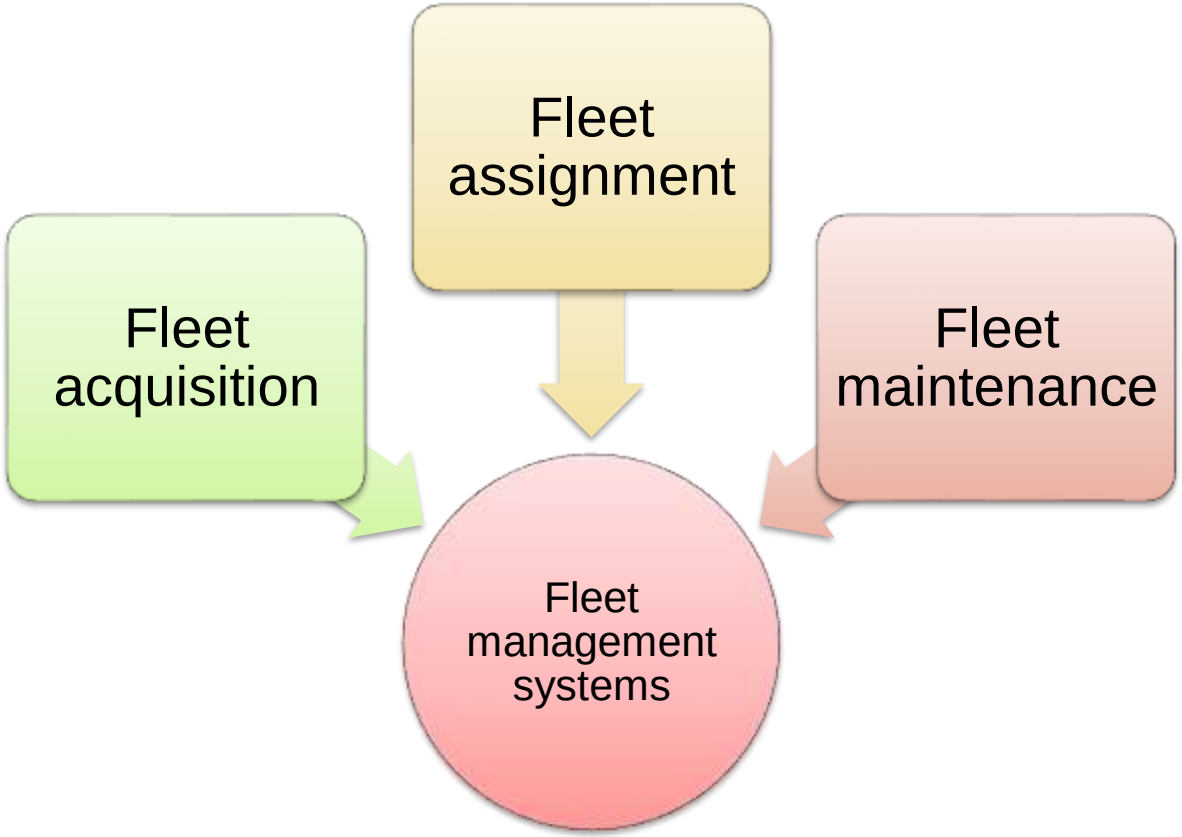
FIGURE 7.1 Key IT systems used by airlines.

Airline Reservation Systems

Key Components:

1. Flight schedules and availability: availability display.
2. Fare quotes and rules: Fare Quote System, fare rules, cabin classes, booking codes, fare basis code.
3. Passenger information: passenger name record, record locator, special service requests.
4. Electronic ticketing: e-ticket, boarding pass.

Fleet Management



Flight scheduling systems

Scheduling systems must be able to handle:

- Strategic goals
- Route network
- Passenger demand
- Aircraft type
- Human resources
- Environmental & safety regulations
- Airport restrictions
- Contingency planning

Revenue Management Systems (RMS)

Capabilities:

- Historical data
- Forecasting
- Modeling
- Decision support

Departure Control Systems (DCS)

Capabilities:

- Check-in
- Boarding passes
- Seat allocation
- Checked baggage
- Load control
- Passenger identification
- Denied boarding
- No shows and standby passengers
- Interline connections
- Interoperability

In-flight technologies

Passengers

- In-flight entertainment (IFE) system
- Geographic information system (GIS)
- Communication systems

Crew

- Tablets
- Navigation, communication and flight logs
- Point-of-sale devices

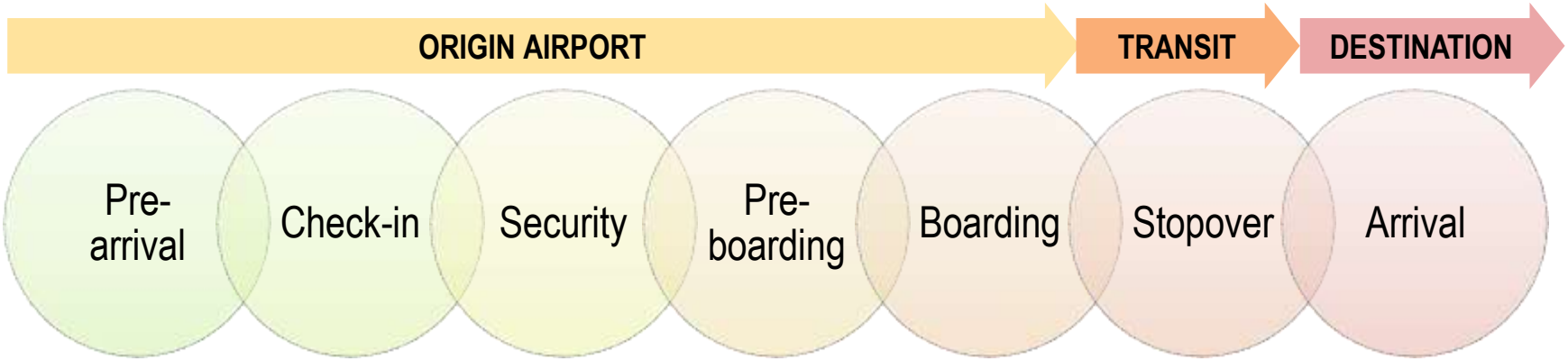


FIGURE 7.2 Stages of the passenger journey.

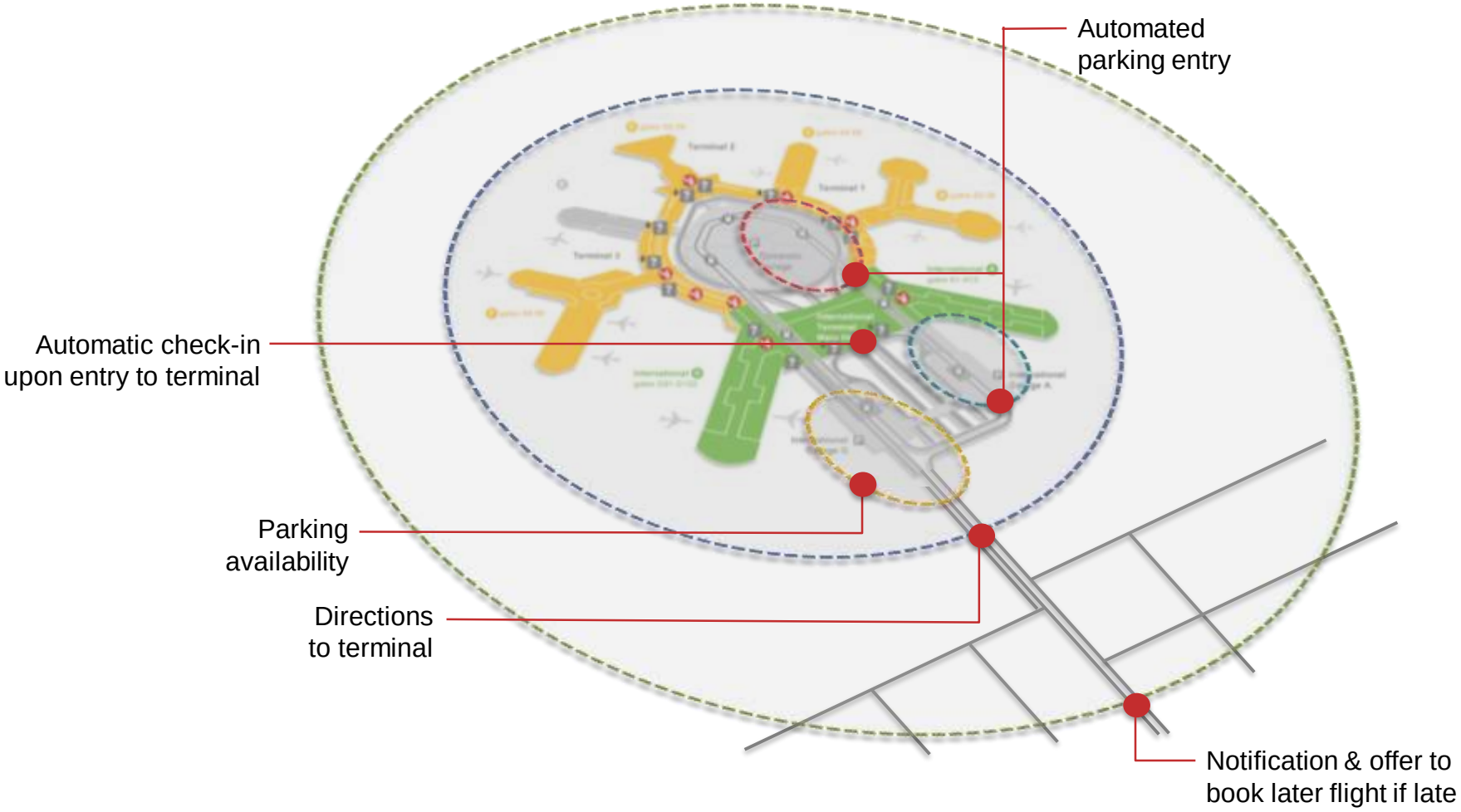


FIGURE 7.3 Example of geofencing around an airport.

Check-in options

- Online check-in
- Self-service kiosks
- Auto check-in using geofencing and smartphones
- Check-in counters

Key Steps in Security Scanning

Pre-boarding technologies

Passengers

- Flight Information Display Systems (FIDS)
- WiFi hotspots
- Recharge stations
- Mobile apps (e.g. airport navigation, GateGuru)

Airports

- Business intelligence tools (passenger volumes, queues, dwell times)
- Point-of-sale (POS) systems
- Alerts and notifications

Arrival

- Immigration databases (e.g. ‘No Fly List’)
- e-passports
- Scanners and cameras
- Passenger Identification: biometrics systems and future systems that will analyze walking gait, body language, heart rhythms or DNA profiles to identify passengers

Baggage and cargo handling

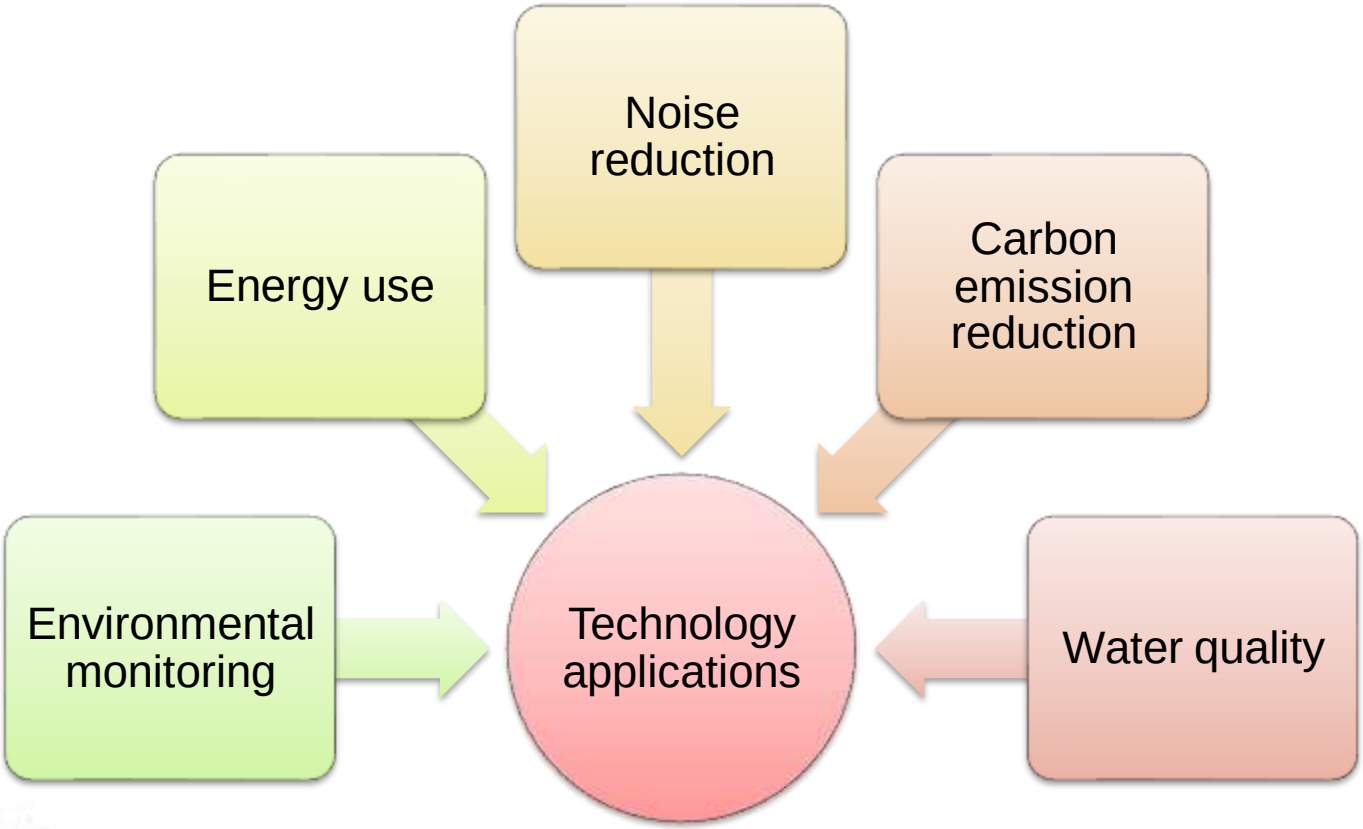
Baggage handling systems (BHSs)

- Bag tags with optical bar codes
- Conveyer belts and robotic systems for sorting
- Baggage tracking systems (e.g. Bagtrac)
- Lost baggage systems (e.g. World Tracer)
- Self-service bag drops
- RFID bag tags and chips in luggage

Safety and security systems

- Communications systems
- Navigation systems
- Surveillance systems
- Flight and weather information systems

Environmental Management Systems (EMS)



Discussion Questions

1. How will advances in smartphones and apps impact the marketing, distribution and delivery of aviation products?
2. Throughout this chapter we have identified a number of applications allowing airlines and airports to track passengers by using signaling technologies such as NFC, RFID and BLE embedded in baggage tags and smartphones. What are the pros and cons of these applications? What privacy or ethical issues might arise? How can airlines and airports overcome these issues?
3. Visit the FFP website for an airline you know. Look for information about redeeming and earning FF points (miles). List all the ways in which members can earn and redeem points. How does the technology on the website support the FFP? What improvements would you like to see?

Discussion Questions

4. By 2020 the global airline fleet is expected to be twice as large as in 2012 and by 2030 passenger numbers are expected to be double. Watch the following video from SITA to learn more about this growth: http://youtu.be/NPi7aeP-LLo/. Supplement the information in this chapter and in the video with your own research and discuss how IT can help airlines and airports cope with the challenges of this expected growth.
5. Visit the website for Changi Airport in Singapore and browse through the pages about terminal facilities and services. Note down examples requiring use of information technology. What IT inspired airport services do you expect to see in 10 years?
6. How might airports and airlines use new technologies such as augmented reality to streamline and improve the passenger experience?

Useful Websites

SITA
www.sita.aero

Amadeus IT Solutions
www.amadeus.com/airlineit

Boeing
www.boeing.com

Changi Airport
www.changiairport.com

GateGuru
www.gateguru.com

Virgin America
www.virginamerica.com

SkyTrax
www.airlinequality.com

Future Travel Experience
www.futuretravelexperience.com

Case Study SITA

- *Société Internationale de Télécommunications Aéronautiques.*
- Formed in 1949 by a consortium of European & British airlines.
- Developed world's first business packet switching network .
- Employs 4500+ staff in over 200 countries.
- Key solutions include:

Sector	Solutions
Communications & Infrastructure	voice, data, messaging, mobility and desktop applications to support aircraft operations, air-ground communications, air traffic control and flight operations;
Airports	passenger processing, baggage management and operations management;
Airlines	passenger management, reservations, e-commerce solutions, fare and ancillary services; and
Government	border management, biometrics, risk assessment and identity verification.