CABI TOURISM TEXTS

2nd Edition

Tourism Information Technology

PIERRE J. BENCKENDORFF
PAULINE J. SHELDON
DANIEL R. FESENMAIER

www.cabi.org

COMPLIMENTARY TEACHING MATERIALS

Chapter 8

Surface Transport and Information Technology

Chapter 8 Learning Objectives

After studying this chapter you should be able to:

1. explain the components an Intelligent Transportation System (ITS) and how they are applied to surface transport;
2. describe the different applications in road, rail and water transport; and
3. evaluate how technology facilitates the connection of systems in intermodal transport.

Key Concepts

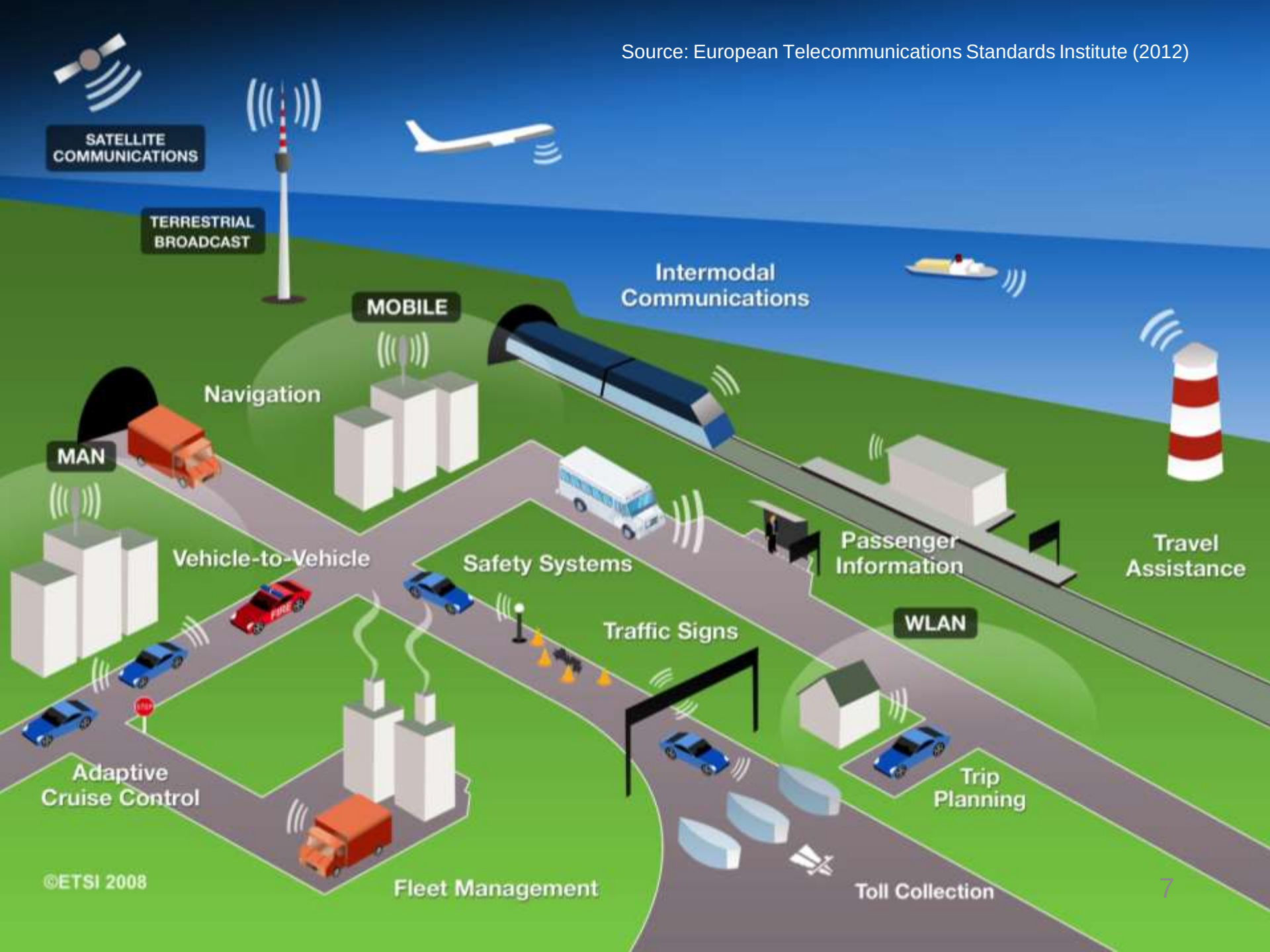
- Automated Traffic Management Systems (ATMSs)
- Automated Vehicle Location (AVL)
- Car/bike sharing
- Driverless cars
- e-tolls and Electronic Road Pricing (ERP)
- Geographic Information System (GIS)
- Intelligent Transport System (ITS)
- Smart cars
- Vehicle Information & Communication System (VICS)

Intelligent Transport Systems (ITSs)

- A broad range of information and communications technologies that improve the safety, efficiency, and performance of the transport system.
- ITSs can help reduce congestion, improve mobility, save lives and optimize our existing infrastructure.
- Industry Insight: Qatar's ITS
  - tunnel management systems
  - incident detection and weather sensors
  - lane and speed control signs
  - connected vehicles and car-sharing systems
  - automated payment mechanisms
  - intelligent parking management

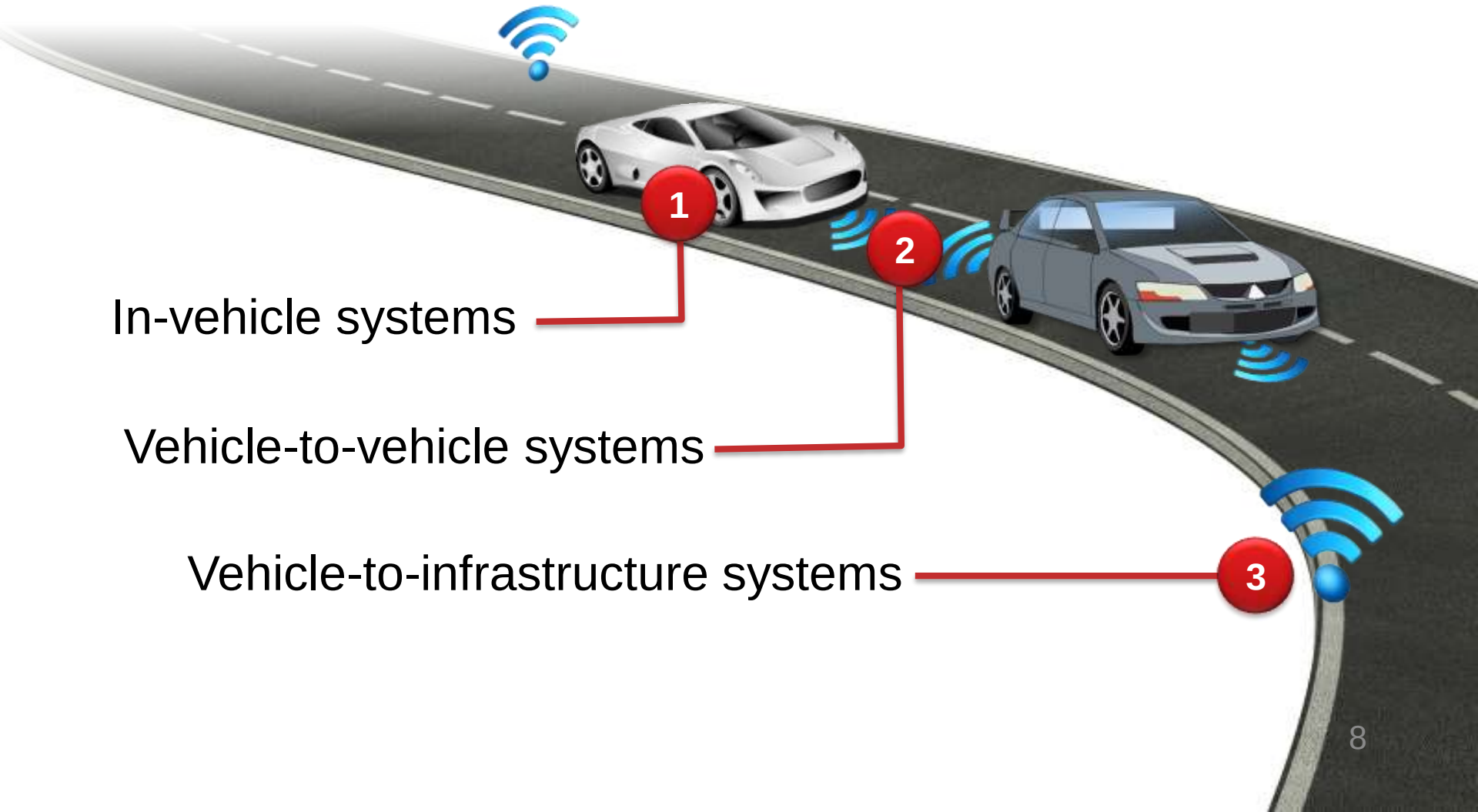
ITS Benefits

- detecting hazards and informing drivers before they are visible;
- keeping vehicles at a safe distance;
- allowing vehicles to communicate with infrastructure;
- route planning and warnings of congestion and accidents;
- keeping drivers informed of the local speed limit;
- monitoring drivers for signs of fatigue;
- real time service information for public transport users;
- smart and seamless ticketing solutions;
- integrating public transport into traffic management systems;
- improved efficiency has obvious benefits for the environment; &
- reliable real-time travel and traffic information.



Source: European Telecommunications Standards Institute (2012)

Information Transfer in ITSs



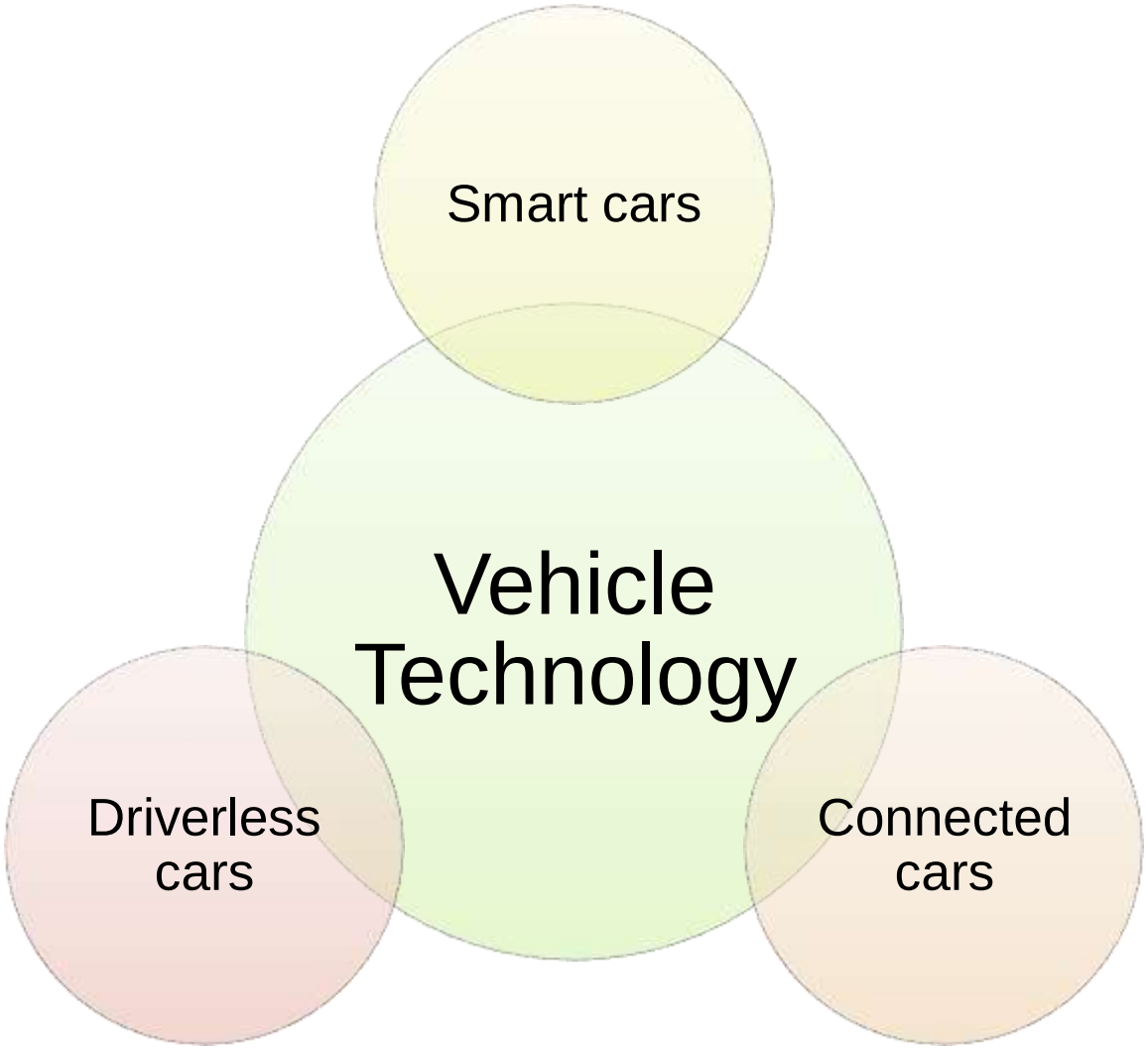
In-vehicle systems

Vehicle-to-vehicle systems

Vehicle-to-infrastructure systems

ITS Applications

- **Automated Traffic Management Systems (ATMSs):** manage the flow of road traffic using a variety of technologies.
- **e-tolls:** electronic toll booths deduct toll payments without stopping.
- **Electronic Road Pricing (ERP):** requires drivers to pay different tolls at different times.
- **Traveler Information Systems:** provide online, real-time information on road conditions.
- **Route guidance system:** helps a driver navigate the best routes to a given location.


Smart cars
Vehicle Technology
Driverless cars
Connected cars

Vehicle Rentals & Taxis

IT Applications

- Reservation systems
- Vehicle inventory control
- Car and bicycle sharing systems
- Ride-sharing systems

Rail Transport

IT Applications

- Web-based computer reservation systems
- GDS connectivity
- Smartphone apps
- Smart cards
- Electronic ticketing systems
- Departure control systems
- Inter-modal booking systems

Water Transport

IT Applications

- Computerized reservation systems
- Cruise booking systems (e.g. CruiseMatch)
- Electronic ticketing systems
- Guest technologies (smart cards, on board navigation, mobile apps, entertainment, tablets)
- Global Navigation Systems and Maritime Distress and Safety Systems
- Point of sale systems
- Inventory control systems

Integrated Public Transport Systems

IT Applications

- Intermodal systems
- Smart cards and contactless ticketing using RFID or NFC (e.g. London's Oyster Card)

Discussion Questions

1. Which of the transport developments discussed in this chapter are most important for tourists (as opposed to residents)? Why?
2. Explain what is meant by collaborative mobility. Describe different modalities for this type of transport. Are there any disadvantages that would prevent you from using this type of transport as a tourist? What are its benefits?
3. Research the various national rail networks other than those in Europe. What type of IT applications are they using? How easy is it for passengers to make cross-border reservations in that part of the world.
4. Spend some time researching driverless cars more. What do you see as the real advantages? How relevant are these advantages to tourists? Are there some types of tourists for which they would not be relevant?

Useful Websites

Intelligent Transportation Society of America
www.itsa.org

Intelligent Transport Systems Australia
www.its-australia.com.au

CruiseMatch
www.cruisematch.com

Intelligent Transportation Systems Society
www.sites.ieee.org/itss

US Dept. of Transportation Research & Innovative Technology
www.its.dot.gov

ABI Research
www.abiresearch.com/research/service/intelligent-transport-systems/

ERTICO
www.ertico.com

The World Carshare Consortium
www.ecoplan.org/carshare

Case Study: Zurich's Transport System

- Intelligent Transport System.
- Consolidated ticketing for 313 trams, 80 trolleybuses and 261 urban buses.
- ITS Applications:
  - automated vehicle location;
  - operations management including incident management;
  - traffic signal priority;
  - electronic fare collection (smart cards);
  - real-time passenger information pre-trip, at stations and in vehicles;
  - automated passenger counting;
  - timetabling; and
  - vehicle and driver scheduling.