

CABI TOURISM TEXTS

2nd Edition

Tourism Information Technology

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COMPLIMENTARY TEACHING
MATERIALS

Chapter 12

Sustainable Tourism and Information Technology



Chapter 12 Learning Objectives

After studying this chapter you should be able to:

1. analyze how IT can improve the environmental, social and economic sustainability of tourism organizations, communities and destinations;
2. explain how IT systems can be used to ensure environmental preservation, purity and physical integrity;
3. describe the role of IT systems in promoting social equity and community wellbeing, local empowerment and the preservation of cultural diversity;
4. understand how IT systems can ensure economic viability and local prosperity; and
5. explain how IT systems can facilitate tourists to behave more sustainably in tourist settings.

Key Concepts

- ⊙ Carbon calculator
- ⊙ Citizen and tourist scientists
- ⊙ Environmental Management Systems (EMSs)
- ⊙ Geographic Information Systems (GISs)
- ⊙ Last-mile connectivity
- ⊙ Pro-poor tourism
- ⊙ Social capital and social equity
- ⊙ Social entrepreneurs
- ⊙ Voluntourist
- ⊙ Weather and climate change system

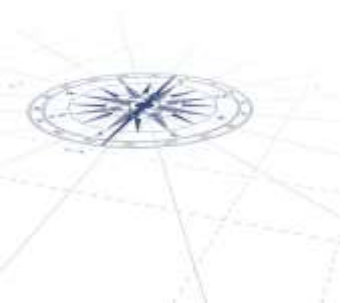
Sustainable Tourism

Sustainable development:

- ⦿ Development that meets the needs of the present without compromising the ability of future generations to meet their own needs (WCED, 1987).

Sustainable tourism:

- ⦿ Tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities (UNEP/UNWTO, 2005).



Applications of IT in sustainable tourism

- ⦿ Carbon calculator
- ⦿ Community informatics
- ⦿ Computer simulations
- ⦿ Destination Management Systems (DMSs)
- ⦿ Economic impact analysis
- ⦿ Environmental Management Systems (EMSs)
- ⦿ Gamification
- ⦿ Geographic Information Systems (GISs)
- ⦿ Global Positioning Systems (GPSs)
- ⦿ Intelligent Transportation Systems (ITSs)
- ⦿ Location-based services (LBSs)
- ⦿ Virtual tourism
- ⦿ Weather and climate change systems



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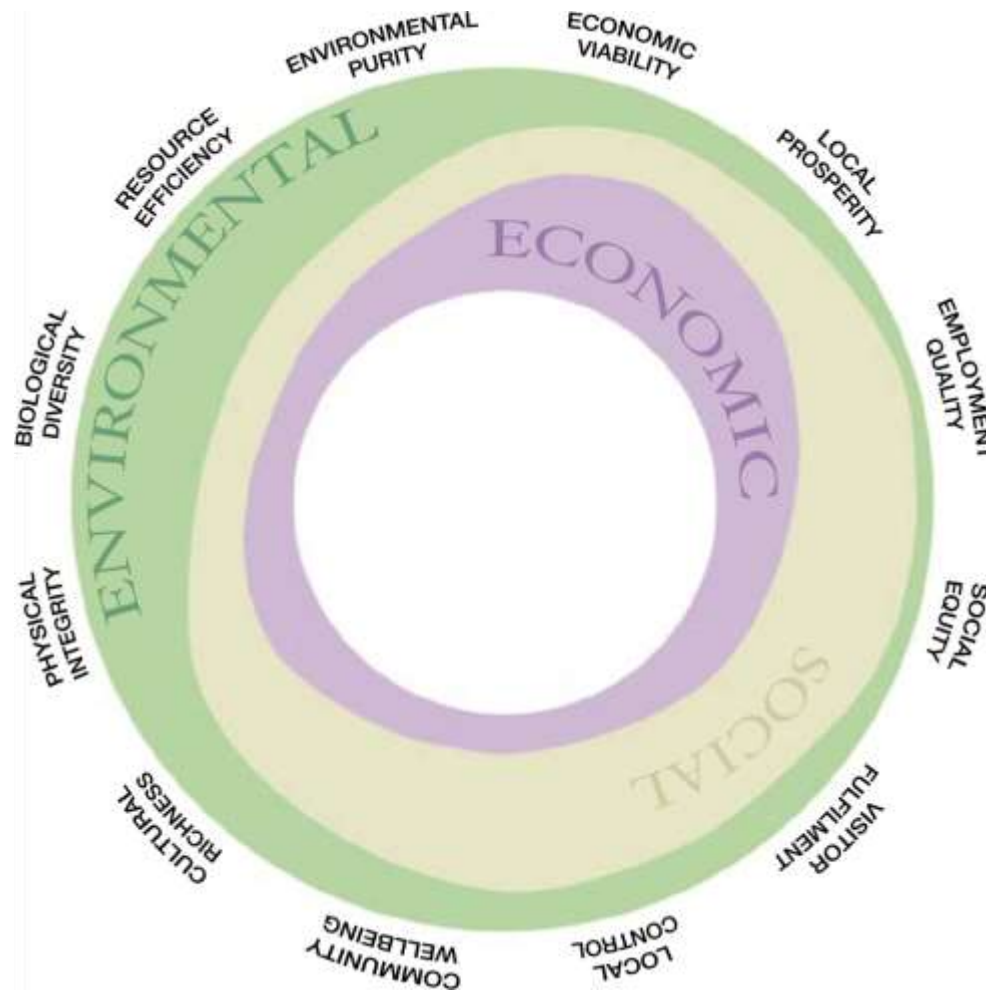


Figure 12.1 Twelve aims of sustainable tourism.

Source: Nielsen, 2000

Resource Efficiency and IT

Application of IT to reduce aviation fuel usage:

- ⦿ systems that optimize flight routes
- ⦿ coordination of arrival and departure times to reduce holding patterns caused by delays
- ⦿ continuous descent systems
- ⦿ design of lighter and more fuel efficient aircraft

Energy and waste reduction in hotels:

- ⦿ energy management systems
- ⦿ monitoring water usage



Environmental purity & physical integrity

- ⦿ Use of DMSs to manage access to natural resources.
- ⦿ Location-based services used for sustainable education and interpretation.
- ⦿ Computer technology monitors and manages efficient use of resources including:
 - water (low-flush toilets, low-flow showerheads)
 - energy (solar power generators, energy-saving light-bulbs)
 - pollution (noise, air and visual pollution)
 - recycling and waste management
- ⦿ Carbon footprint calculators.
- ⦿ Use of CAD software to design more efficient buildings.

Biological diversity

- ① **Citizen scientists:** handheld devices can allow tourists to monitor animal and bird species and other environmental phenomenon on their digital devices as they travel.
- ① **Tourist scientist:** combining tourism, research, conservation and computers to identify and track flora and fauna (e.g. Earthwatch, Cyber trackers).
- ① **Voluntourists:** make meaningful contributions to communities and wildlife in destinations.



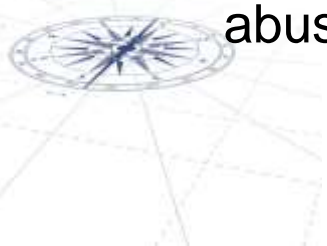
Virtual Substitute Travel Experiences

- ⦿ Tourists can experience some benefits of travel by staying home and using technology to virtually experience the destination, removing any environmental damage to the destination.



Social equity & community wellbeing

- ⦿ **Last-mile connectivity:** IT advances have made it possible to connect even the most remote communities to address information asymmetry.
- ⦿ IT democratizes and equalizes the community by giving all residents and enterprises equal access to technology.
- ⦿ IT networks allow people to connect to knowledge, education, tourist markets, and destination management systems.
- ⦿ IT contributes to **social equity** by attracting the right tourists.
- ⦿ IT supports **social enterprise**.
- ⦿ IT provides information and access for handicapped travelers.
- ⦿ IT supports the monitoring and reporting of human rights abuses.



Local control

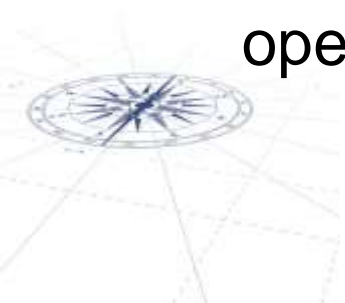
- ⊙ **community informatics** empower communities and supports **stakeholder engagement**:
 - remote input to meetings
 - electronic polling
 - scenario-based design



Cultural richness

IT can contribute to cultural richness by:

- ⦿ disseminating better understanding of customs and traditions to the benefit of tourists and host communities;
- ⦿ promoting the visibility of cultural resources – especially new or small ones;
- ⦿ monitoring tourism impacts on cultural resources and visitor flow management strategies; and
- ⦿ building partnerships between cultural and tourism operators to strengthen their market position.



Economic viability & local prosperity

IT can impact local prosperity by building:

- ⊙ **Financial capital:** providing online communication with lending organizations;
- ⊙ **Human capital:** providing increased knowledge of new skills through distance learning and processes required for certification;
- ⊙ **Natural capital:** providing opportunities to access national government policies online;
- ⊙ **Social capital:** cultivating contacts beyond the local community; and
- ⊙ **Physical capital:** lobbying for the provision of basic infrastructure including data and telecommunications infrastructure.



Economic viability & local prosperity

IT challenges:

- ⦿ lack of investment for IT
- ⦿ lack of training and expertise
- ⦿ lack of financial or technical infrastructure
- ⦿ language barriers



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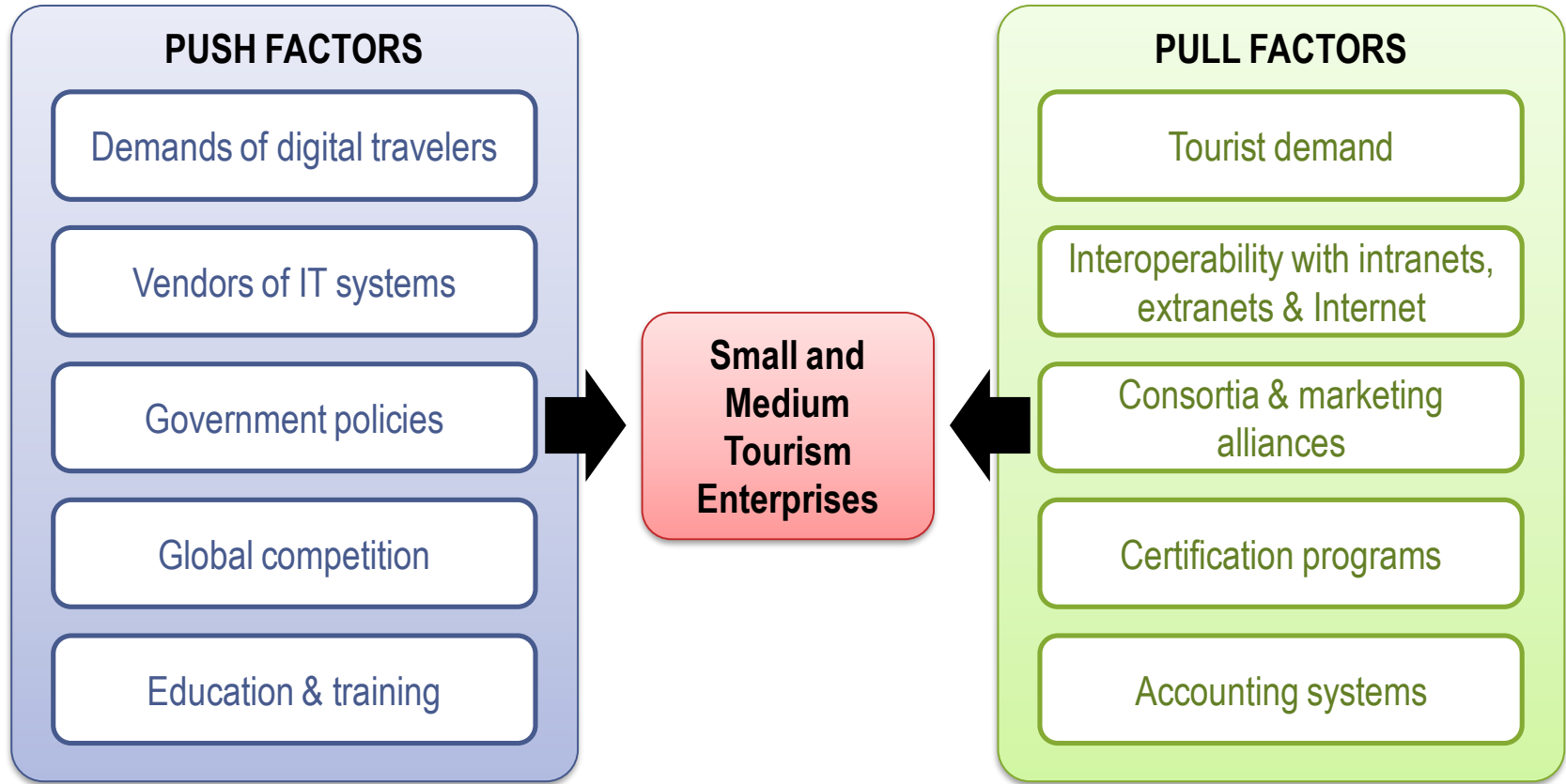
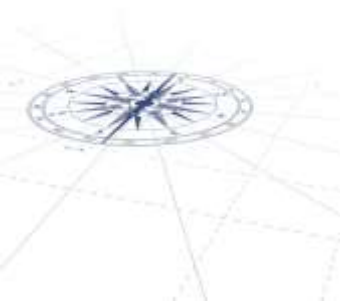


Figure 12.4 Factors determining IT use by SMEs.

(Adapted from Buhalis, 2003, p. 143)

Employment quality & capacity building

- ◎ IT can be used to:
 - attract talented employees to the tourism industry
 - improve the quality of training and education
- ◎ Examples:
 - MOOCs
 - BEST Education Network
 - The International Ecotourism Society
 - Rainforest Alliance



Discussion Questions

1. What kind of digital infrastructure is needed for tourists to become citizen scientists in destinations?
2. What are the special needs and challenges faced by SMEs regarding the sustainable use of technologies in the digital age?
3. How can indigenous communities in tourism destinations be empowered with IT? Find examples of how technology has been used to improve the well-being of indigenous communities.

Discussion Questions

4. Identify a specific tourism destination or protected area that uses location-based services. How are these services likely to improve the destination's sustainability?
5. Find a Destination Management System with features focusing on the environmental integrity of the destination. Describe these features and their likely impact.
6. Study the UNCTAD e-tourism platform in more detail (www.unctad.org). Explain how joining this initiative could help the poor in a destination to benefit from tourism.

Useful Websites



UNESCO Sustainable Tourism

www.unesco.org/education/tlsf/mods/t_heme_c/mod16.html



Global Sustainable Tourism Council

www.gstcouncil.org



Sustainable Tourism Online

www.sustainabletourisonline.com



The International Ecotourism Society (TIES)

www.ecotourism.org



National Geographic Center for Sustainable Destinations

www.nationalgeographic.com/travel/sustainable.org/



Rainforest Alliance

www.rainforestalliance.org



European Commission's Directorate General for Enterprise and Industry

ec.europa.eu/enterprise/dg/index_en.htm



Conservation International

www.conservation.org

Case Study: US National Park Service

- ⦿ Founded in 1916 by Woodrow Wilson, the US NPS current administers over 400 parks and sites.
- ⦿ IT Applications include:
 - monitoring and documenting natural resources
 - mapping data using GIS
 - digital web cameras
 - community and public engagement (citizen scientists)