The role of ICT in tourism and related changes in skills: electronic commerce and revenue management

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Tourism is a highly information-intensive industry, so information and communication technology (ICT) has a great impact on the tourism business. Electronic commerce and revenue management are heavily influenced by ICT. Changes in skill requirements in these fields are discussed in this paper.

Traditional tourism value chains evolved into tourism value net. In this new environment tourism professionals need skills to identify opportunities for cross-promotion, skills for finding efficient combination of distribution channels, skills for managing sales across several distribution channels and making profit out of this process. In the tourism value net, revenue management becomes as important and challenging as never before. Effective revenue management requires skills to combine several knowledge areas persistently and creatively.

1. The role of information and communication technology in tourism

Information is lifeblood of tourism (Poon, 1993) and, therefore, ICT has a great impact on the tourism industry. ICT enables direct communication with clients and improves efficiency and effectiveness of customer service, trading and product design related processes. At the same time ICT makes competition harder and demands continuous investments.

ICT provides new tools and enables new distribution channels. It supports tourism innovations and vice versa. ICT development has created a new business environment, e-tourism. These continuous developments require new skills.

In this contribution the following two areas, which are heavily influenced by ICT development and related skill needs, are discussed: electronic commerce and revenue management.

2.   Electronic commerce

## 2.1.   Changes in tourism value chains

Rapid development of ICT has affected the way information is exchanged among tourism industry players. Electronic commerce (e-commerce) can be defined as a secure exchange of information, products and services via computer networks.

E-commerce can be divided into the following categories:

(a)   business to client;

(b)   business to business;

(c)   business to government;

(d)   client to client;

(e)   research to business;

(f)   business to client communication.

ICT provides tools for direct communication with clients; the Internet is revolutionising distribution and sales. The shape of travel and tourism value chains (taken here to include distribution of information as well as transactions) is changing in a fundamental way (WTO, 2001). Figure 1 provides a presentation of the traditional value chains.

Figure 1: Traditional value chains
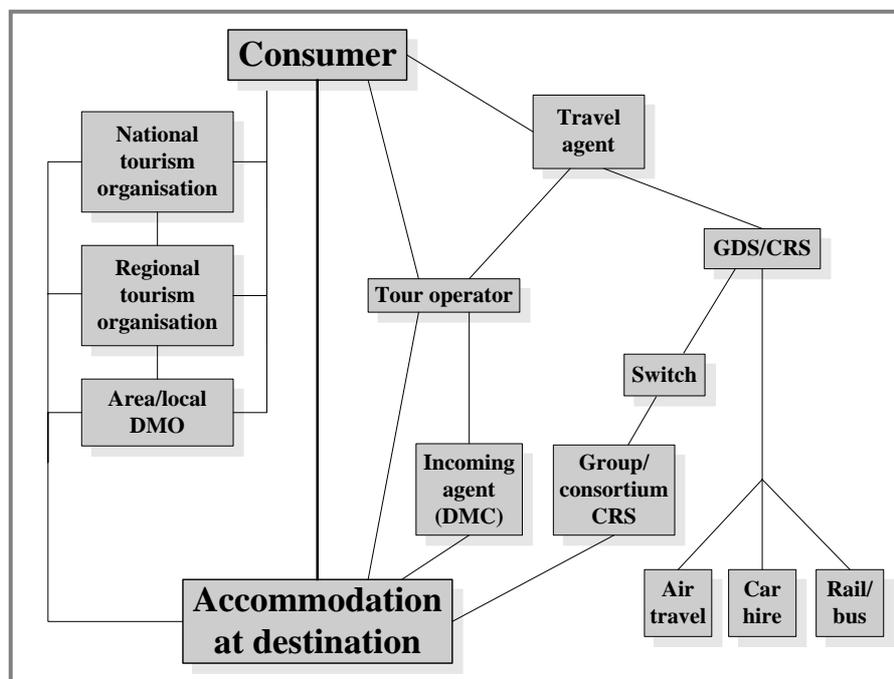
Source: Associates of Tourism Enterprise and Management (TEAM)
– adapted from Werthner and Ebner

Notes: GDS   – global distribution system
CRS   – central reservation system
DMC   – destination management company
DMO   – destination marketing organisation

The situation is now changing, as the overall structure moves towards an Internet-based value net (⁵), as represented in Figure 2.

Figure 2: Emerging value net (or Star)
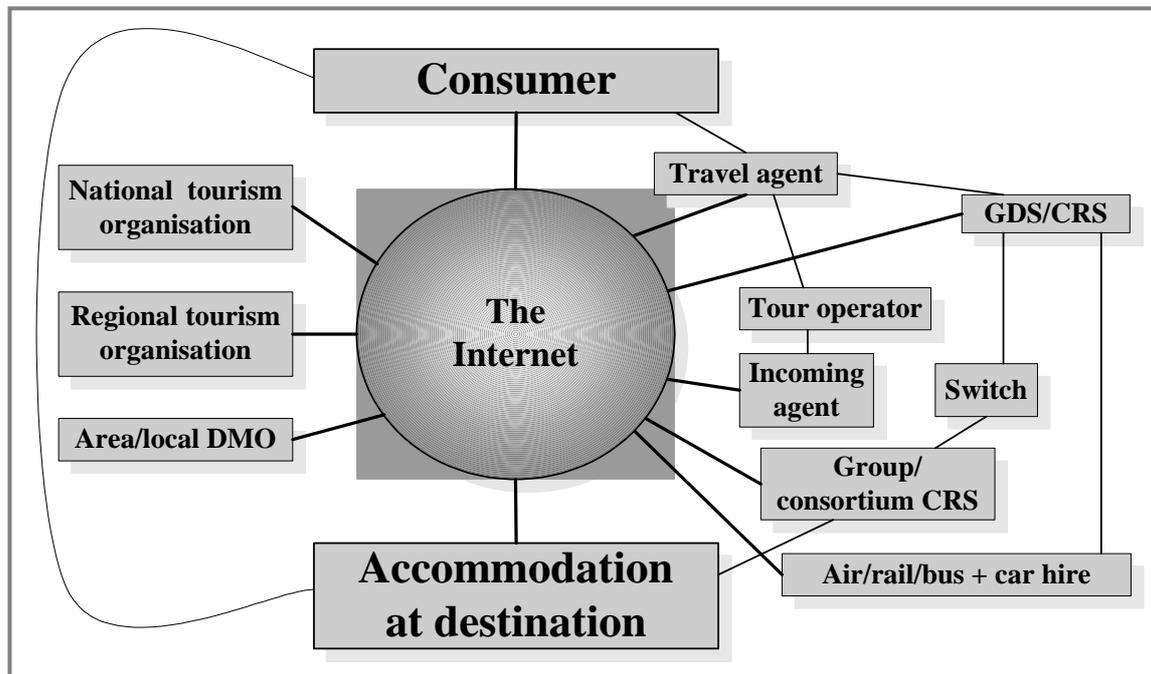
It is now possible for any player within the system to communicate electronically with any other. Direct selling to the customer has increased. There are many new intermediaries such as Internet portals specialising in selling tourism products. Furthermore, distribution channels traditionally used by tour operators or travel agencies are now available for customers via the Internet. Additionally, tourism suppliers have established direct channels to clients.

Tourism professionals have the challenge of finding, among all available communication and distribution channels, the right channel to the right customer segment which would be cost- and effort-efficient at the same time.

Furthermore, ICT development has made customer relationship management more visible and efficient. ICT enables companies to interact with clients and continuously alter products and services in order to meet, and exceed, customer expectations.

(⁵) Tourism value net represents new ways of workflow between suppliers, intermediaries and customers. Tourism value net participants can distribute tourism information products and services directly to each other; the value net is characterised by high variety of participants and distribution channels.

2.2.   Business to business communication

The large number and variety of distribution channels is a challenge for business to business communication as well. Distribution cooperation is expanding across different tourism industry sectors: transportation companies are providing the opportunity to book accommodation and tourism destination management organisations are developing Internet portals to distribute tourism information as well as tourism products and services. As a result, tourism value net is even more complicated and challenging for both suppliers and intermediaries.

In the tourism value net, companies cooperate with several distribution channels. Since distribution channels are usually not fully integrated to the company's own inventory management system, seamless online real-time distribution requires considerable effort to manage availability and rates in different distribution channels.

Success in tourism demands rapid and efficient communication. The volumes of information analysed and exchanged by tourism professionals are huge and clients expect fast responses and real time confirmations. All these require tourism professionals to be familiar with many ICT tools, systems and information sources. Furthermore, tourism professionals must have excellent communication and networking skills.

Business to business and business to client communications are the core of the tourism value net. However, business to government, client to client and research to business information flows have to be taken into account too.

In business to government communication tourism is influenced by government regulations and policies (visa regulations, food standards, etc.). Electronic interactions between business and government organisations increase the awareness and effectiveness.

With client to client communication, travellers tend to exchange travel experiences among friends, colleagues, relatives, etc., and this information has impact on the individual's consumption decisions. The Internet increased the opportunity for exchanging travel experiences. Many companies have recognised this and turned the trend into a new sales opportunity by providing customer feedback features on their websites.

In research to business communication, ICT tools provide new opportunities to collect and analyse tourism information as well as exchange knowledge and publish trends.

3.   Changes in tourism inventory management

Information is a strategic resource for tourism companies. ICT provides new means to analyse this information, providing new concepts and tools for efficient inventory management. Revenue management concepts and tools have been designed to improve and support bottom-line oriented decision-making. For tourism companies that cooperate with several distribution channels, revenue management becomes more important and challenging than ever before.

Revenue management has the following objectives:

(a) maximise yield (price x units sold) or minimise lost revenue per available product unit in view of average cost per available product unit;

(b) control availability of price products by customer revenue potential and forecast segment mix;

(c) control daily availability of price products lower than full price, based on unsold inventory, time left to sell and segment total demand.

To fulfil these objectives, tourism professionals need strong knowledge in the following areas: marketing, finance management, statistics, customer service principles and distribution trends. Effective revenue management requires skills to combine these knowledge areas persistently and creatively.

Revenue management may sound like a (top) management need, but most European tourism companies are small and medium size enterprises where every employee is a revenue manager. Thus, it is important to provide a knowledge base for the revenue management at all levels of tourism education institutions.

4.   Conclusions

Trends described above require skills not only to handle different ICT tools, but also to choose the right ICT tools. Furthermore, electronic distribution requires not only awareness of different information sources and distribution channels but also the ability to evaluate them. Tourism professionals need skills for successful navigation in tourism value net: skills to identify opportunities for cross-promotion and cross-selling, skills for finding efficient combination of distribution channels, skills for managing sales across several distribution channels and making profit from the process. Many of these skills develop with work experience but tourism educational institutions must provide sufficient knowledge and practice on these topics to meet emerging skill requirements in the tourism labour market. ICT courses can no longer be completely separate study entities; instead ICT must be studied in the context of its application: as a part of marketing, customer service, revenue management and other courses.

In addition to these new skills, the traditional skills such as customer service, legal aspects, cross-cultural communication are an important part of the skill base for navigation in the tourism value net.

In order to develop and maintain the skill base for successful navigation in the tourism value net, active networking among tourism educational institutions, tourism organisations and industry players such as suppliers, intermediaries, government offices and technology providers is needed.

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