

# Possibilities of novel technologies application for purposes of tourism of people with special needs

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**Abstract:** This article aims at investigating the extent to which the available opportunities are being exploited, including current and potential possibilities of novel technologies application for purposes of tourism of people with special needs. The research methods used were: logical-compartmental analysis and observation. Main results of analysis: Development of the knowledge-based economy, studies in it, and implementation of their results in practice, bring many untapped opportunities, including wider application of e-tourism in meeting requirements and needs of disabled people, elderly people or other groups, which have rarely been taken into consideration as separate groups within economic analyses. Practical implications: There is a need for working out novel business models, including the area of e-tourism for people with special needs, which will take into consideration national requirements and domestic possibilities.

**Keywords:** tourism, recreation, local economy, disabled people, elderly people

*JEL codes: I12, I31, Q26*

## **1. Introduction**

Tourism holds an important position in social life of developed and developing countries. Recreation constitutes any form of activity, amusement, etc. used for refreshment of body or mind, while tourism is usually associated with travelling, both for pleasure and business. Thus, tourism may be regarded as one of the forms of recreation. Current forms of work organization and cultural conditioning (e.g. higher number of days off) cause free time to be not only a privilege of wealthier social classes, but rather a natural and ordinary element of life enjoyed by almost every member of society (e.g. holidays for children, leaves for workers, pensioners, the so-called long weekends and advice how to ‘earn’ a longer stay at home). The omnipresence of free time and necessity of its creative exploitation cause free time to become an important factor in the development for local communities, culture and economy. The multidimensionality and interdisciplinary character of the aforementioned issues, different social, economic, environmental and technological conditionings, a variety of possibilities, needs and preferences result in that it constitutes an interesting area of studies and a field of gathering new experiences, not only concerning the development of societies, but also shaping new markets (Dąbrowska 2005). Such a situation causes proliferation of offers and their tailoring to the needs of the average Pole. But still, not every person can and should participate in the aforementioned activities. There is still a social group which needs a dedicated approach in the sphere of organising tourism, since they find it hard or even impossible to freely participate in tourist offers that are physically available to others. This article aims at investigating the extent to which the available opportunities are being exploited, including current and potential possibilities of tourism of people with special needs.

## **2. Tourism as an important indicator of development**

Analyses of needs and attitudes of society toward tourism constitute an important indicator of:

- standard and quality of living,
- wealth of households and their expenditures structure,
- health status (including regularity of practicing active forms of tourism),

- social divisions into groups (taking into consideration, e.g. wealth, but also preferences of active/passive leisure, etc.),
- taking up new trends, habits, and strategies of their promotion,
- further societal and economic development (including optimistic outlook on the future).

A number of analyses concern the role of tourist services within spending free time depending on the group (societal, professional, cultural, etc.), especially taking into consideration dynamics of changes in the services market. Despite the fact that free time spending, such as tourism, is regarded as consumption, it can also be perceived as an investment (e.g. education of children and their intellectual development, but also – in the case of active forms of leisure – improvement of health condition and the consequent higher work effectiveness). Pedagogy and sociology recognize the importance of this domain, as well, taking into consideration relations between tourism and physical education, intellectual development, morality and aesthetic values (cf. methods of scouts) (Tauber i Siwiński 2002; Pięta 2004). This context emphasizes efficient planning of free time as the so-called checklist of the professional and societal competences, not only within the area of work packages organization and time management. The ability to rest efficiently and regenerate life forces plays a vital role and may constitute a significant advantage over other people as far as professional careers are concerned. We should be aware that we live in society, where stroke is a leading cause of disability, even affecting people younger than 30 years, and chronic fatigue syndrome (CFS) constitutes a frequent disease.

One side of the problem is popularization of tourism on a massive scale (i.e. the same offers addressed to all potential customers); on the other hand, an offer dedicated to the individual customer becomes rare or too expensive (i.e. beyond reach of an average Pole).

### **3. Technical development vs. access to rest**

Leisure has often been defined as a quality of experience or as free time. But the disabled and elderly people frequently find themselves excluded from traditional forms of leisure. Thus, every attempt to prevent such a situation is valuable. Wider Internet access, including mobile (using smartphones and tablet computers) and wide application of global positioning system (GPS) have changed the way of planning and execution of rest, especially with reference to local

tourism. The former “imaginary tour using the map” has changed into virtual tours.

On the other hand, hard competition causes travel companies to keep looking for novel offers for current and future customers. Electronic access to tourist services may be regarded as fairly common in Poland, since according to the report “Digital, Social & Mobile in 2015”:

- there are 25.7 million of active Internet users (67%), including 15.9 million of mobile users (41%),
- mean bit rate is 8.6 Mbps (5Mbps for mobile access),
- mean daily usage of the Internet is 4.9 hours (1.8 hours in the case of mobile access),
- 46% of web pages are viewed using smartphones,
- the most popular activities of mobile Internet users are on-line payments (20%), social media (16%) and video streaming (14%),
- Polish users have 13 million social media accounts (34%), including 9 million accounts using mobile access (24%),
- an average Polish user of social media spends 2.1 hours per day using them,
- the most popular are Facebook, Google+ and NK.pl (Raport 2016).

The aforementioned values will increase, and the pressure caused by novel technologies, such as e-health and e-tourism will grow higher and higher. The number of e-services will increase, mainly because Polish law regulations define them in a very general manner (Ustawa Programu Operacyjnego Innowacyjna Gospodarka, Reformat 2015).

E-tourism (also known as “travel technology” or “e-travel”) covers almost all traditional kinds of services associated with tourism: directly – within tourism, hotel industry, and transport of people, and indirectly – within organizational processes (improvement of service potential, efficiency, loyalty system, discount system) (Reformat 2015). Thus, e-tourism acts on many levels: single customer, single companies, groups of companies (e.g. integrated retrieval of connections, accommodation, entrance fees) and whole markets (at the level of national strategies if tourism constitutes one of the key branches of economy) (Flis 2009, Buchalis 2008, Pawlicz 2012). It is connected with the change of approach towards booking and payment system (Dąbrowska i Janoś-Kresło 2010). This way of adoption of information and communication technology (ICT) by tourists and businesses influences the tourism industry, changing its processes and the value chains (Buhalis 2003).

E-tourism has become number one e-commerce category with the largest number of transactions. But we should be aware that:

- e-tourism needs support of ICT,
- its products are complex and intangible,
- its production and consumption experiences are inseparable,
- its inventories of goods and services are perishable,
- consumption experience varies depending on the individual tourist at different times,
- e-tourism is composite in its nature,
- it requires a great effort to coordinate different types of services,
- it requires providing rich information in order to reduce uncertainty,
- there is a need to act swiftly to sell unsold inventories to maximize revenue and profit (Harteveldt, Stark, Sehgal and van Geldern 2009).

Virtual sightseeing is well recognized in Poland: *Wirtualny Kraj* web page consists of over 20 000 images and 700 movies (Wirtualny Kraj), this way you can visit Krakow, the Royal Castle in Warsaw, and the National Museum in Poznań. The foreign offer is much wider, and its marketing value is hard to overestimate.

Three main sub-areas of e-tourism have emerged:

- operational tools and systems used by tourism businesses or organizations to increase efficiency and competitiveness,
- consumer platforms used by tourists to search information, plan trips, make purchases, and share experiences,
- distribution and commerce tools which offer distribution channels between tourists and businesses (Nyheim, McFadden and Connolly 2004, Pan and Fesenmaier 2006, Law, Qi and Buhalis 2010, Litvin, Goldsmith and Pan 2008, Pan, Xiang, Fesenmaier and Law 2011, Wang, Park and Fesenmaier 2012, Collins, Cobanoglu and Malik 2008).

E-tourism generates a large number of data from information searches, transactions, and spatial movement. The above-mentioned “big data” are a potential indicator of tourists’ likes and dislikes, motivations, and planning behaviour. The proper data mining technologies may provide new insights and knowledge and, as a result, improve the quality of service.

#### **4. Special needs vs. tourism**

Services associated with tourism of people with special needs, until recently niche, are becoming more and more popular. They cover not only camps organized for children with diabetes mellitus, holidays for disabled people or elderly people, but reach as far as more advanced targeted services: extreme tourism for wheelchair users, ‘awaydays’ for companies and societies, pilgrimage tourism, or spa for people who want to lose weight or build the musculature. A recent initiative by Jarosław Kuźniar concerning a web page for people who want to travel cheap and ‘outside-the-box’ (GoForWorld) shows that this market still has a huge hidden potential ahead, especially if it is supported by Internet/mobile solutions. Such a wide spectrum of needs of Poles presents a new situation: there opens an additional segment of the market, i.e. customer-tailored tourism, not necessarily expensive. It causes ‘demassification’ of travel services and provides smaller companies and regional tourism with another challenging task – coming up with solutions that are original, locally focused and relatively cheap. Besides offering an additional possibility of regional development, it stimulates initiative and gives an opportunity to meet future challenges actively, including rural areas or places which are not attractive to tourists. As we can see, there are many enthusiasts who are proud of their “little homeland”, willing to increase its prestige. Surprisingly, local animosities may play a certain positive role, as they very often introduce elements of competition between neighbouring resorts.

The potential of the market of special needs in the field of tourism is huge. Accessible tourism constitutes a big market now and as the population is aging (especially in developed countries), it will get even bigger. There are 2.5 million disabled people in Poland, and 6 million of elderly people (it is forecast that by 2030 there will have been 10 million). There are over 1 billion people with disabilities worldwide, as well as another 2 billion people indirectly affected by disability (spouses, children, and caregivers dealing with persons with disabilities). Even 25% of the expenditure on travelling and leisure activities may come from the disabled and elderly people or their spouses, or care attendants in 2020. The distinctive group can be established by the so-called “new consumers”: open to new and marketable services, experienced, careful, frugal, rational, and using web-based price comparisons or group shopping services.

Common targeting of the special needs is rather impossible due to diversity of needs, demands and expectations/preferences of disabled people and their families/carers. The source, type and severity of an individual disability constitute a clear way to differentiate solutions, while age and level of physical/cognitive development may also play a crucial role. The number of

factors may be much more extensive, which necessitates carrying out additional research in order to describe groups of patients interested in e-Tourism in a more detailed way.

A SWOT analysis (strengths, weaknesses, occupations, threats) is contained in Table 1. It adds to the discussion on strategies within the aforementioned area, simultaneously strengthening its potential (optimization of occupations and minimization of threats).

**Table 1. SWOT analysis for tourism of people with special needs**

<p><b>STRENGTHS</b></p> <p>Well-defined groups of customers          Customers organized in societies and clubs          Increasing wealth of Poles          Target groups have free time</p>	<p><b>WEAKNESSES</b></p> <p>High initial cost (including e-tourism)</p>
<p><b>OCCUPATIONS</b></p> <p>Uniqueness of the offer (idea, lack of alternatives)          Lack of competition (including initial stage)          Possibility of personalization (within, e.g., regional groups, disciplinary groups, etc.)</p>	<p><b>THREATS</b></p> <p>Limited money of customers          (offer should be well profiled)          Legal issues and regulations concerning e-services</p>

Source: ...

The key importance of the idea is shown by, e.g. the increasing popularity of the Wheelchair Miss of Poland (*Jedyna Taka* Foundation), International Polish Championships of Wheelchair Dance or achievements of our Paralympians (Polski Komitet Paraolimpijski). If Jaś Mela, who had undergone legs amputations, could reach the both Poles and take part in "Dancing with the Stars" tv programme, Mark Inglis, without his own legs reached Mount Everest (2006) and Steven Hawking took a space trip, frontiers are far beyond our imagination.

A useful example here may be tourism organized for disabled people using a wheelchair (permanently or during recovery only) with their healthy families. Such a situation requires taking into consideration many important factors, including the following:

- integrated transport, accommodation, and stay schedule (including sightseeing),
- transport suitable and comfortable for wheelchair users (place for a wheelchair, dedicated safety belts, etc.),
- hotel adapted for wheelchair users (driveways for disabled people, lifts, wider doors, increased space in the room and bath),

- appropriate sightseeing schedule for wheelchair users (selection of buildings and areas adapted to the needs of wheelchair users, which is not common in the case of monuments),
- appropriate rest schedule for wheelchair users (swimming pools with pool lifts, adapted locker-rooms and toilets, access to the beach, beach wheelchairs, and even swimming wheelchairs) (Mikołajewska 2016).

In the case of people with paraplegia or tetraplegia, the aforementioned requirements become more restrictive (concerning, e.g. access to a swimming pool). Separate requirements concern also groups with blind people.

Accessibility of tourism of persons with disabilities constitutes part of a trend, which includes:

- the humanitarian aspect: tourism for all people,
- the economic aspect: employment of persons in services, empowerment for employment of disabled people,
- the psycho-social aspect: prevention, relaxation, knowledge and skills, social contacts, and personal/team challenge (Neumann 2010, Oleśniewicz 2012).

Local communities should pay particular attention to become attractive disability-friendly tourist destinations through legal regulations, monitoring and supervision. Persons with disabilities need access to physical environment, transportation system, information, and to a wide range of public facilities and services. The following may constitute the main limitations: inaccessible tourist environment, nature of transport services, language barrier and a lack of tourism-related awareness towards persons with disabilities. There is a need for common consciousness that the most important intention behind the disabled participating in tourism is the “independent living” approach. Thus, adjustment of communication, infrastructure, attitudes, methods, programmes and technologies has to respect the abilities of the participants. Two main areas of the aforementioned adaptation may be distinguished:

- adaptation of the external determinants: environment, transfer of information, knowledge, and attitudes, compensative and adaptive tools,
- adaptation of internal (personal) determinants: acceptance of abilities and limitations, motivation, and efforts to succeed (Valkova, 2014).

Internal adaptations are an individual issue, but the external adaptations may be improved through governmental, municipal or community inclusive policies, by local representatives, civic organizations and enthusiastic volunteers (Valkova, 2014).

## 5. Limitations of current concepts

Traditional supply and demand approaches may be replaced by a hybrid supply-demand model put forward by Kwaśnicki (2003). Modern digital market faces new phenomena, such as a copy worth the same amount of money as an original or data sets (information access) or licenses sold instead of material goods. The above-mentioned hybrid approach seems to be better tailored to the new e-tourism market.

Possible adaptations may concern:

- the individual attitude,
- the environment: field and ways of reconstruction, sight-seeing accessibility, etc.,
- transfer of information and knowledge: written and electronic materials, traffic and tourists marks, accessible public transport, parking, pathways, sight-seeing areas, services of boarding and accommodation,
- compensative and adaptive tools and instruments: wheelchairs, hand-bikes, guide dogs, as far as individuals assisted with special tools, such as prostheses, hearing aids, visual compensative aids and the like are concerned (Valkova, 2014).

The development of e-tourism is influenced by local factors (connected with the direct regional environment) and global factors (including offer, effects of competition, the strategy of development, communication abilities, models of co-operation with customers and business partners, etc.).

A significant portion of analyses focus on global factors, including the increasing role of Information Society (Knowledge-Based Society) and associated technological progress (e.g. popularity of smartphone apps, smartbands, smartwatches, not only among runners), increased quality of services and low-cost solutions (Kleer 2009, Toffler 2006). Possible identification of each customer, monitoring of his/her needs, semi-automatic personalization of offers and customer-tailored sales make such global factors similar to local factors (from the customer's point of view) providing better identification with the company, taking into consideration demography and psychosocial profile of customers and their openness to novel solutions.

Local factors are specific for the particular area (place, community, region), but current situation includes enhanced possibilities and abilities associated with new technologies, uniqueness, and innovation of the offer and effectiveness of the local economic policy and local institutions. From this point of view, each local community has hidden potential that is associated not only with the local tourist resources and uniqueness of the region, but also with the idea of activity and efficiency concerning its practical implementation.

Moreover, an e-tourism product usually requires cooperation across multiple sectors at the national, regional and international levels: persons with disabilities, their families and care attendants, government(s), international agencies, tour operators, other people and organizations. Challenges for persons with disabilities include:

- inaccessible websites and booking services,
- lack of information on accessible facilities, services, equipment rentals and tourist attractions,
- untrained staff capable of advising on accessibility issues,
- lack of accessible transfer facilities and services,
- lack of accessible hotel rooms, restaurants, shops, toilets, public places, etc.

## **6. Directions for development and further research**

We should be aware that e-tourism is becoming one of the main branches of mainstream tourism research. Despite relative novelty, it has matured into a well-established discipline with specialized journals, conferences, and societies. But particular attention should be paid to the fact that emerging e-tourism systems are usually industry-driven.

The key directions of the development cover the following issues:

- decrease in digital exclusion (increases the target group),
- increase in technological and consumer consciousness,
- ability to combine in packages with other electronic services, including telemedicine/telerehabilitation and traditional services (e.g. regional specialist services),
- diversification of ways to reach more active part of customers (e.g. through Universities of Third Age designed for elderly people) and the rest of customers (e.g. through local advertisement, Polish Post or notices in parishes).

Consequently, the key directions for further research cover the issues, such as:

- dynamics of changes within a described group of services, service providers and customers (e.g. new types of customers),
- dynamics and paradigm shifts made by subsequent novel technologies adopted by businesses and consumers,
- factors influencing the development of the tourism market, including key factors crucial for the profitability of investments within the aforementioned area (e.g. business models),
- prognostic signs concerning levels of the single customer, companies, regional and national strategies (e.g. bankruptcy of travel agencies and associated lack of trust),
- legal barriers for further e-tourism development,
- wider interdisciplinary approach such as studies concerning economy of aging,
- tourist experience of persons with disabilities, their families and care attendants, and associated accessibility issues.

On the other hand, the most important limitations include as follows:

- many studies are post-hoc, lack of predictive research,
- lack of studies concerning different types of new technologies in the lab stage possibly relevant to the tourism industry,
- lack of studies concerning the issue of how different online data sets can be used to create future operational and marketing strategies.

## **7. Conclusion**

The development of information society in Poland, related studies and implementation of their results in practice (including novel business models) bring many untapped opportunities. Wider application of e-tourism to meet the specific special needs in the area of tourism creates new strategies of development of the local communities and consumer market. This article constitutes an introduction to further studies in the aforementioned area. There are a few identified points of view and stakeholders involved in it, such as destination managers and policy makers, but also researchers and students, in particular those dealing with tourism and hospitality programs. Moreover, there is a need for deeper interdisciplinary studies on the crucial role which is played by communication and ICTs within the tourism and hotel industry sectors as far as e-

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tourism applications, technologies and practices are concerned. The following rare elements may also play a considerable role: analysis of content quality, online monitoring of the reputation of tourist destinations and cultural translation/localization of messages useful for planning, running and evaluation of e-tourism related activities. Thus, also completely new training courses should be organized to upgrade the knowledge pertaining to tourism, hotel services and hospitality issues.

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## *Turystyka i rekreacja osób ze specjalnymi potrzebami*

### *Streszczenie*

Artykuł podejmuje próbę oceny, na ile wykorzystywane są obecnie możliwości oferowane przez nowoczesne technologie w zakresie turystyki i rekreacji osób ze specjalnymi potrzebami. Metody badawcze: metody analizy logiczno-porównawczej, metoda obserwacji. Główne wyniki analiz: Rozwój gospodarki opartej na wiedzy, badania w tym obszarze oraz implementacja ich wyników w praktyce niosą ze sobą dużo niewykorzystanych jeszcze możliwości, w tym w obszarze szerszego wykorzystania e-turystyki w zaspokajaniu specjalnych potrzeb osób niepełnosprawnych, osób w podeszłym wieku czy innych grup, dotychczas rzadko uwzględnianych jako odrębne grupy w analizie ekonomicznej. Implikacje praktyczne: Potrzebne są nowe modele biznesowe, w tym w obszarze e-turystyki dla osób ze specjalnymi potrzebami, uwzględniające potrzeby i możliwości w tym zakresie.

**Słowa kluczowe:** turystyka, rekreacja, gospodarka lokalna, osoby niepełnosprawne, osoby w podeszłym wieku