

Information Technologies in the Strategy for Tourist Destination Development in the Western Ukrainian Border Regions

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Abstract

The article examines the peculiarities of the formation and development of tourist destinations in the western Ukrainian border regions. GMDH analysis of statistical indicators of tourism in Lviv, Ivano-Frankivsk, Zakarpattia, Volyn and Chernivtsi regions revealed the importance of information campaigns promoting local destinations. The strategy for tourist destination formation, information support and promotion in the western Ukrainian border regions is developed and the components of its realisation are described.

Keywords

tourism, destinations, development strategy, information technologies

Introduction

Tourism, a sphere of economic activity that uses natural and recreational resources, is widely developed in the modern world. Tourist activity is based on the integrated use of the potential of the territory and the output of different industries to create an attractive product based on a combination of goods, services and impressions. The tourism market is not only one of the most globalised markets but also contributes to the globalisation of other markets and economic activities.

A wide range of tourism products, which are based on different features of the area where they are produced and sold, can be targeted at a specific audience. Some types of tourism require expensive and highly organised tourist infrastructure as well as high-quality services, while others can develop in the almost complete absence of such amenities. Nevertheless, in both cases, tourism is seen as a sphere of economic activity that can stimulate the economic development of the territory and create the necessary conditions for its growth.

Ukraine, actively using natural and recreational resources, rose 10 positions in the Competitiveness Index in travel and tourism over the past two years to take 78th place out 140 countries, according to the World Economic Forum (*The Travel & Tourism...* 2019). Valery Rudenko and a group of scientists note that “after land and water resources, natural and recreational potential is the main resource in 16 physical and geographical regions of Ukraine (almost 6% of the total area). The Crimean mountains and the Transcarpathian region occupy leading positions here” (Rudenko 2014, p. 75).

At the same time, Ukraine, despite its unique tourist potential, owes a relatively small share of its national economy to tourism. In 2017, the value added by tourism amounted to \$1.3 billion, the lowest in Europe except for Albania and Luxembourg (Danylyshyn).

Considering a tourist destination as a product, the formation of tourist destinations in regions with unique tourist resources refers to strategic economic entities that will promote the proportional development of territorial and sectoral economies, ensure the growth of revenue, create new jobs and improve the living standards and health of the local population. As noted by Vladimir Quint, strategists must be able to anticipate patterns and trends that have not yet manifested and be able to adequately plan their impact (Kvint 2015, p. 6).

The use of a strategic approach to the formation and development of tourist destinations involves the selection of factors that determine the attractiveness of a tourist product or service in a particular area. Tourist and recreational potential are aspects of sustainable economic development in the medium and long term. The objects of strategic planning for the development of a tourist destination are the introduction of innovative organisational and technological solutions to attract and serve tourists, mechanisms to ensure and improve the quality of tourist services, intensification of the use of information and communication systems, and more.

Information technologies in the strategic development of tourism

Modern tourism information systems consist of several types of support subsystems, which include software, technical, legal, organisational, logistical and information support.

For example, personal computers with office software allow tourist enterprises to effectively solve many problems in the following areas: development of the necessary documentation, ensuring proper document flow, preparation of contracts and agreements, accounting for business results, analysis of business results, marketing research, maintaining databases for customers, sales, personnel, and so on.

At the same time, the key role of information technology is to attract tourists to the destination, from acquaintance with the destination and choice of itinerary to the formation of impressions of the destination. That is why the effective use of the internet for the promotion of the territory or region is an important element of the establishment and strategic development of a tourist destination. This may entail the creation of an internet portal, promotion on social media such as Facebook, Twitter, YouTube, etc., banner and contextual tourist advertising, and destination promotion on specialised tourist portals, sites, forums and blogs.

It is also necessary to consider the importance of electronic catalogues, virtual tours, online booking, transport accessibility and infrastructure, development of destination facilities, availability and quality of labour resources, environmental constraints and more. According to Turkish researcher Nermin Kisi, a strategic approach to destination formation and sustainable tourism development requires diversification of tourism products and event management, destination image creation, regular visitors, a management system, promotion and branding strategies, partnerships and cooperation (Kisi 2019). He offers the following block diagram of strategy development (Kisi 2019, p. 7):

Key factors → decision hierarchy → prioritisation → development strategy

The development of a strategic concept of destination development based on selective types of tourism is also proposed by Montenegrin researcher Aleksa Vučetić, who used statistical methods to establish that certain types of tourism imply a different range of destination product management, based on which the vision, mission, strategic development goals can be determined, along with strategies for the development of a particular tourism product, depending on the phase of the life cycle of the destination (Vučetić 2010, p. 5).

One step in the development of a strategy for the formation and development of tourist destinations is strategic analysis of the environment, which involves the study of the external environment, immediate surroundings and internal environment of the destination.

The external environment includes the legal regulation of tourism development, macroeconomic influences, political processes, scientific, technical and technological development, and so on.

The immediate environment is composed of suppliers, consumers, competitors, the labour market, general infrastructure, and the like.

Analysis of the internal environment reveals the tourist potential of the destination. This depends on the availability of natural recreational resources, historical monuments, culture, architecture, the development of special infrastructure (hotels, restaurants, entertainment venues, etc.), travel agencies, qualified personnel and similar factors.

It is important that travel services, such as tickets to the destination, public transport, car rental, booking of hotels, restaurants and other services, as well as reliable information on accommodation programs and other related services are now easily available through the internet portals of tourist destinations.

Researchers Mariana Grytsiuk, Pavlo Grytsiuk and Yurij Gryciuk have proposed a strategy for sustainable tourism development in the Carpathian region, which includes almost all western Ukrainian border regions. The purpose of the strategy is to transform the territory of the Carpathians, with its rich natural resources as well as its historical and cultural heritage, into a safe area with a clean natural environment that is attractive to residents and entrepreneurs (Grytsiuk et al. 2017). However, the proposed strategy applies only to the mountainous part of the region and does not correlate with other regional socio-economic development strategies. The development of a strategy for the formation and development of each destination must take into account all the elements of the internal environment described above.

There are different approaches to the choice of strategies for the formation and development of a tourist destination, including the expansion of established places and territories, comprehensive coverage and centralisation.

For the western Ukrainian regions, which boast a significant concentration of natural recreational resources as well as historical, cultural, and architectural monuments, the most effective strategy is based on comprehensive coverage. This approach involves dividing the entire territory of each region into several destinations that unite the most attractive places for tourists.



Figure 1. Western Ukrainian territories bordering Poland, Slovakia, Hungary and Romania

Source: own elaboration.

The study of the formation and functioning of tourist destinations in the border regions of Poland, Slovakia, Hungary and Romania and comparison with the initial conditions of the western Ukrainian border regions (Fig. 1) shows the need to develop a strategy.

This strategy should be aimed at the determination of priorities that take into account the possible directions of destination formation, including the assessment of prospective destinations and potential limitations to their development.

Factors of tourism development in the western Ukrainian border regions

Research into the development of regional tourism is supported by many modern methods of statistical analysis: Naïve, MA, single-exponential smoothing, ARIMA, multiple regressions, neural networks, and so on (Burger et al. 2001). However, tourism development is a complex and non-linear phenomenon. Therefore, the choice of an adequate modelling method affects the accuracy of its factor analysis. In recent years, the Group Method of Data Handling (GMDH) has proven to accurately describe tourism processes (Shabri 2015).

Developed in 1974 by Madala and Ivakhnenko (1974), GMDH is a method of multidimensional analysis for the modelling and identification of complex systems. The general relationship between input and output variables in it is described by the complex polynomial series Volterra, known as the Kolmogorov-Gabor series:

$$y = a_0 + \sum_{i=1}^n a_i x_i + \sum_{i=1}^n \sum_{j=1}^n a_{ij} x_i x_j + \sum_{i=1}^n \sum_{j=1}^n \sum_{k=1}^n a_{ijk} x_i x_j x_k + \dots \quad (1)$$

GMDH analysis most often uses a polynomial in the form:

$$\hat{y} = a_0 + a_1 x_i + a_2 x_j + a_3 x_i x_j + a_4 x_i^2 + a_5 x_j^2 \quad (2)$$

The main parameters of tourism development in the western Ukrainian regions were formalised from the official 2019 data of the State Statistics Service of Ukraine (Sait Derzhavnoho...). Data on regional tourist destination websites have been obtained from the open data of the Google Search service. The parameterisation included the following indicators of Lviv, Ivano-Frankivsk, Zakarpattia, Volyn and Chernivtsi regions:

- number of web pages about tourist destinations in the region;
- number of legal entities involved with tourist activity;
- land areas suitable for tourism
- capital investments;
- number of club establishments;
- forest lands (hectares);
- area of reserves and national nature parks;
- the length of the road network.

The dynamics of the income of individual entrepreneurs from the provision of tourist services in these areas were chosen as the initial target parameter.

GMDH Shell DS software was used to build the GMDH model. For acceptable forecast accuracy, the following modes of application of the GMDH were chosen: observations were mixed in even/odd mode; method of verification – cross; number of parts – 4; criterion – mean square of the deviations; ranking of variables – by correlation; restrictions on the best variables – 20; the main algorithm is combinatorial (fast). Following GMDH analysis, the model rejected insignificant input factors and found, with a coefficient of determination of 0.9, the functional dependence of the output and input parameters:

$$Y = 9,507.1 + 0.00002 * (0.0007 * x_1 * x_2 - 7,519.44) * (194.98 + 0.0079 * x_2 * (x_1 * 0.087 - 7,903.82))$$

where Y represents the income of individual entrepreneurs from the provision of tourist services, x_1 is the number of web pages with information about tourist destinations in the region, and x_2 is the area of reserves and national nature parks.

In the case of the western Ukrainian border regions, GMDH modelling revealed a strong positive dependence of tourism income development on the representation of tourist destinations on the internet and areas of protected recreational potential. The remaining indicators did not show importance as effective growth points for tourism. Thus, the identified factors of the use of information technology were the basis of the strategy for the formation, information support and promotion of tourist destinations of the western Ukrainian border regions shown in Figure 2.

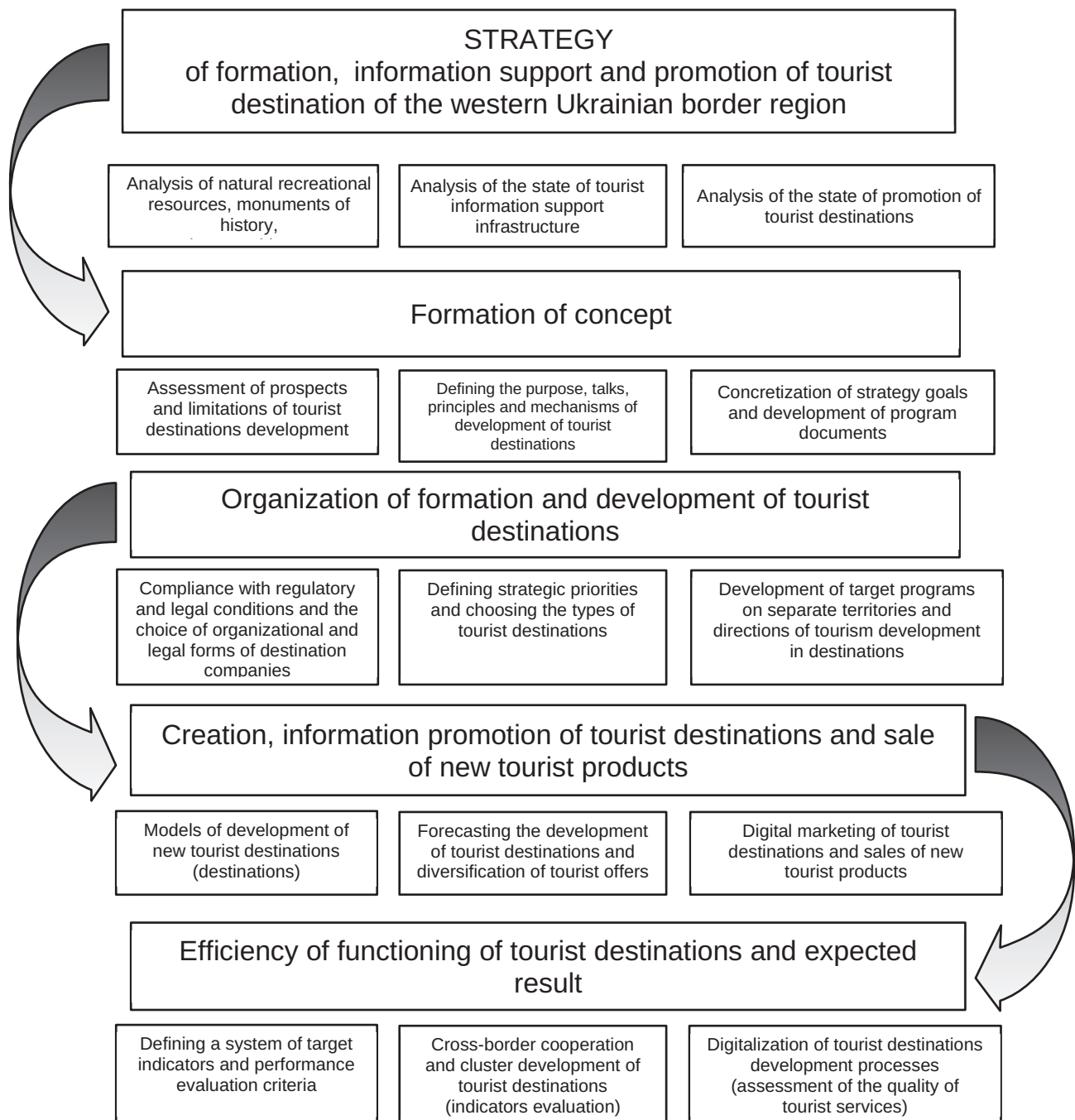


Figure 2. Strategy for the formation, information support and promotion of tourist destinations in the western Ukrainian border regions

Source: own elaboration.

Conclusions

Analysis of the territories of the western Ukrainian border regions confirms their significant tourist potential and the availability of opportunities for the development of related economic activities. At the same time, the competitive touristic advantages of these regions are considered not only in the Ukrainian national context. The border situation, the growth of the contact function of the border, the development of international transport corridors, and the strengthening of interest in the border regions afford serious prospects for the development of regional tourism in western Ukraine.

Given the availability of visa-free entry into Ukraine and exit to EU countries and the influx of tourists from the border areas of European countries, who have a common historical and cultural heritage, traditions and even family ties in western Ukraine, the strategic task is to create tourist destinations of various types, which will provide significant economic growth and reduce differences in economic development in border regions, in particular, differences in income, well-being, infrastructural provision, access to social benefits, etc.

Individual entrepreneurs play an important role in ensuring regional tourism. Due to their size and a low financial threshold for entering the market, they are agile and adapt readily to the changing tourist demand. The ability to manoeuvre quickly in terms of basic service provision makes them an attractive subject for local tourist development. In this aspect, the results of GMDH analysis of tourism statistics from the western Ukrainian border regions showed that an individual entrepreneur's revenue from the provision of tourist services (Y) depends significantly on the number of web pages with information on tourist destinations (x_1) and area of reserves and national nature parks (x_2). The identified positive dependence provides an objective basis for the identification of strategic growth points for tourism in the studied regions, which were taken into account in the proposed strategy for the formation, information support and promotion of tourist destinations in the western Ukrainian border regions (Fig. 1). The strategy aims to promote the main aspects of tourism development and highlight their impact on the regional economy, thus providing broad social support to the population and businesses that may be sceptical and wary of establishing a tourist destination in their home region.

The strategy is implemented in the following stages: the formulation of the concept; the planning and establishment of tourist destinations; development and promotion of tourist destinations and sale of new tourist products; efficiency measures and assessment.

Strategies for the formation, information support and promotion of tourist destinations apply to all geographically neighbouring and interconnected companies operating in the field of tourism. They are characterised by the commonality and complementarity of their activities. This is because any tourist area is multifunctional: it creates many territorial products, each of which may have its own development strategy. The tourist product of the destination is the only commodity utility. It is created from existing tourist assets and resources of the territory and therefore is an independent territorial product – a destination that must have a strategy. The strategic orientation of innovative tourist destination development should be towards creating a competitive tourist product, attracting investment in the development and new construction of tourist facilities, the introduction of modern and advanced technologies into tourist services, and widespread promotion on the internet.

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