

# DIGITAL MARKETING AS A TOOL OF SUSTAINABLE MANAGEMENT OF BIOWASTE IN ECOTOURISM

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**Abstract:** *The main goal of this study was to show that the digital marketing is an adequate and effective tool of the sustainable management bio-waste in ecotourism. The goal of the work was to point out the attitude of potential tourists who visit ecological tourist destinations and whether they act on marketing activities presented through the digital media system. The results of the research have shown that the digital marketing can be a significant segment of biotope management in ecotourism, considering the benefits of using digital media. The hypothesis of this research was – the digital marketing is a significant tool for researching sustainable bio-management, which has been confirmed. It has been established that the digital marketing is important in spreading awareness about bio-waste management in the population. The significance of digital marketing of bio-waste management in ecotourism is confirmed.*

**Keywords:** *digital marketing, bio-waste, ecotourism.*

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## 1. INTRODUCTION

The digital media world is constantly changing and moving. The evolving technologies and the way people use them are transformed not only in access to information, but also in the way information is processed in various interactive channels. Tourism is one of the most dynamic sectors and the way of connecting these two segments, means a new form of communication with travelers - tourists. The World Tourism Organization (WTO) defines sustainable tourism as a principle that meets the needs of tourists and the needs of a tourist destination, and protects and enhances tourism opportunities for the needs of the future generations; also, satisfies the needs of today's tourists as well, while simultaneously protects and enhances development potentials [3]. Ecotourism is generally defined as a form of tourism that seeks to protect the environment, improve the lives of the local population and educate visitors [11]. The ecotourism industry can be defined in different ways, and with different terms such as natural tourism, low-impact tourism, green tourism, bio-tourism, and ecologically responsible tourism. Governments usually define ecotourism as a source of funding for their countries, while environmental organizations generally insist that ecotourism is based on nature, sustainable management, conservation support and environmental education [8]. It contributes to improve the economy of remote and rural areas [4]. The aim of ecotourism is to ensure economic growth, the empowerment of society, the preservation of natural resources [1] and improve the activities of people's lives in a particular environment [10]. It was found that ecotourism can have negative sides. The competition between tourism companies and high demand may reduce the focus on sustainability and responsible practices, leading to environmental degradation [4].

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Sustainable development, energy efficiency, the use of renewable energy sources and environmental protection are the most current topics at the beginning of this century. Technologies and production systems are being developed for the use of renewable sources that represent environmentally clean sources of energy, without harmful emissions and adverse impacts on soil, water, air, forests, climate, human health and the flora and fauna. Sustainable development, energy efficiency, the use of renewable energy sources and environmental protection have become a strategic issue of state development. The promotion of these programs, processes and development plans has become a systemic solution and an obligation of a wider social system [7].

Mechanisms for involving all stakeholders of the community (citizens, local authorities, public and private companies, external partners) in the planning process are a key issue that should be considered at an early stage in the development of municipal waste management strategies. Decision making involves not only deciding between several options, but also defining a list of all possible options from which the choice of individual solutions can be made. The involvement of all stakeholders is of the multiple importance because they inform them of the problem at the same time and educate them on the choice of solution that will apply in the daily practice of waste management, and which are economically cost-effective. Raising environmental awareness of citizens contributes to the acceptance of a sustainable waste management strategy and the creation of greater public confidence in decision-making institutions on waste management and wider environmental issues.

The public is ultimately using the benefits arising from a good Strategic Community Solid Waste Management Plan. Through everyday activities and the existential needs of waste disposal, citizens practically and directly participate in the functioning of utility systems. By contrast, only a small number of people are aware of what is happening with their waste and services that need to be organized so that the entire communal system can function effectively and permanently. Successful introduction of novelties into the waste management system requires consistency with the proposed strategic solutions, the discipline of all stakeholders, the information system and continuous education, as well as the effective implementation of legislation.

Public campaigns and education are means to increase the level of public interest. Support and participation will be even greater if the public is properly aware of the goals of the planned activities and if there are certain benefits for individuals and the community. For the same reasons, the efficient functioning of the waste management system is conditioned by the greater degree of public participation in the previous process of planning the optimal waste management strategy. As already stated, the „incorporation” of public attitudes completes the functionality of future utility systems at the planning stage and thus prejudice the possible cost of irrational technical solutions. Consequently, it has been proven that there is a prediction between the level of public participation in the process of planning the waste management system and the efficiency of the functioning of the system itself.

The Waste Management Act defined the principles of waste management, according to the hierarchy, where prior to the disposal of waste by landfilling, it is defined as „utilization” or the use of waste values (composting, burning with the use of energy, etc.) (Waste Management Law, Article 6). Sustainable development of cities and city municipalities is unachievable without the establishment of an appropriate waste management system. In the territory of cities there is no practice of separation, sorting and the recycling of waste. One of the main causes is the underdeveloped ecological awareness of the population, and insufficient knowledge and the awareness of the citizens about the negative effects of environmental pollution is one of the limitations in establishing primary separation and sorting of waste. The low level of environmental awareness among citizens

causes, among other things, the emergence of an increasing number of wild dumps [7]. Garden waste, green waste and various kitchen waste are mainly biofuels. Bio-treatment is becoming more and more developed in the world. This waste accounts for almost a third of the household's waste. The bio-pad is collected separately and disposed of according to a special procedure. Municipal waste in Serbia accounts for over 43% of the biodegradable fraction, which includes garden waste with almost 12% and food waste at 31.2%. Paper and cardboard make up 16.6% of municipal waste, while plastics account for just under 15%. The fraction with the smallest share is glass 52% and metal 1.8%, while the remaining categories, such as: leather, diapers, fine elements, etc., make up about 13.2% of municipal waste [2].

The digital media world is constantly changing and moving. The evolving technologies and the way people use them converts not only to access to information, but also to the way information is processed in various interactive channels. Tourism is one of the most dynamic sectors and the way of connecting these two worlds, it means a new form of communication with travelers - tourists. Consumers become more independent, social networks are a key part of the way they communicate. The nature of the service provision and the decision as to which services should be offered are influenced by all these consumer trends [9].

The Internet is an important electronic medium for tourism development. In the case of ecotourism, it provides the primary mechanism for promoting the opportunities of ecotourism (providers) and for exploring and planning experiences of ecotourism (consumer). Traditional marketing ecotourism with established ecotourism principles is considered limited. On the other hand, by increasing the number of tourists, the natural environment, long-term sustainability and the legitimacy of the industry can be endangered. The use of the Internet in promoting „unused” eco-products can accelerate negative outcomes [5]. The Conservation and Development Project (ICDP) conducted in the northwestern province of Cameroon, on the example of the Kilum-Ium Forest, has shown that it can contribute to the objectives of conserving natural resources through cooperation with the local population. The conservation goals are achievable if they are in accordance with the developmental needs of the population, and life activities can have an impact on the preservation of natural resources by changing attitudes and behavior of people [1].

## 2. METHODOLOGY

Digital marketing can be a significant segment of ecotourism management in ecotourism if you see the benefits of using digital media.

The aim of this research is to examine digital marketing as a promoting tool for sustainable bio-management in ecotourism. The basic hypothesis of this research: digital marketing is a significant tool for promoting sustainable bio-management and the level of digital marketing is relatively high.

### *Design*

The frequency-type design, or systematic-non-experimental research, was used.

### *Sample*

The sample was made up of 300 respondents, with a range of ages from 28 to 88 years. The sample was made up of 141 male and 159 female respondents. Respondents are of varying degrees of formal education, ranging from elementary school (n = 6), three-year school (n = 31),

four-year school (n = 141), higher school / faculty (n = 107) and masters = 15). The method of collecting the sample was intentional – occasionally.

### *Instruments*

A scale of assessments was used as an instrument for collecting data.

### *Procedure*

To collect the necessary data, the respondents are contacted electronically. The research was conducted with respect to ethical codes and the respondents explained in detail the purpose of this research, as well as the scientific use of the collected data. Participation in the research was anonymous and on a voluntary basis.

There were no significant problems in collecting data. Data for this study were collected over a period of several weeks.

### *Statistical analysis*

The IBM SPSS 22.0 Software Package for Social Sciences was used for statistical analysis of data. Hi square test was applied in order to test the hypothesized research. The level of significance for accepting or rejecting set hypotheses was 0.05.

## **The Results**

	Received N	Expected N	Residuals
Yes	150 (50%)	100,0	50,0
Maybe	127 (42,3%)	100,0	27,0
No	23 (7,7%)	100,0	-77,0
Total	300 (100%)		

$\chi^2 = 91.58; SS = 2; p = .000$

Table 1. Attitude towards biotope and the possibilities of biotope selection from other types of waste

Table 1 shows that there is a statistically significant difference in attitude towards biotope and selection of biotopes from the other types of waste. The data show that there is a positive approach to the selection of biotope and its selection, with a small percentage of negatively considering the possibility of biotope selection.

	Received N	Expected N	Residuals
1	5 (1,7%)	60,0	-55,0
2	24 (8,0%)	60,0	-36,0
3	48 (16,0%)	60,0	-12,0
4	83 (27,7%)	60,0	23,0
5	140 (46,7%)	60,0	80,0
Total	300 (100%)		

$\chi^2 = 189,90; SS = 4; p = .000$

Table 2. The role of digital marketing (television attachments and broadcasts)

Table 2 shows that there is a statistically significant difference in relation to digital marketing related to the use of television shows and annexes in order to promote and manage biotope in

ecotourism. Most respondents have responded positively to this topic, while a negligible percentage of respondents think that digital marketing does not contribute to the too much potential role that biotope can play in ecotourism (1-disagree; 5-fully agrees).

	Received N	Expected N	Residuals
1	28 (9,3%)	60,0	-32,0
2	49 (16,3%)	60,0	-11,0
3	112 (37,3%)	60,0	52,0
4	70 (23,3%)	60,0	10,0
5	41 (13,7%)	60,0	-19,0
Total	300 (100%)		

$\chi^2 = 71,83; SS = 4; p = .000$

Table 3. The role of digital marking (dissemination of educational content)

Table 3 shows that there is a statistically significant difference in relation to digital marketing through the dissemination of educational content. Digital tools can be used to a significant extent for the dissemination of educational content concerning awareness raising on the importance of sustainable bio-management in ecotourism, but the answers to this question are somewhat reserved. Most people think this is only partially achievable.

	Received N	Expected N	Residuals
1	74 (24,7%)	60,0	14,0
2	48 (16,0%)	60,0	-12,0
3	67 (22,3%)	60,0	7,0
4	52 (17,3%)	60,0	-8,0
5	59 (19,7%)	60,0	-1,0
Total	300 (100%)		

$\chi^2 = 7,56; SS = 4; p = .109$

Table 4. The role of digital marking (personal approach)

From Table 4 it can be noticed that there is no statistically significant difference in relation to digital marketing that is carried out through personal activity or the operation of an individual using digital tools. A significant percentage of respondents believe that this mode of action would not produce the desired results, while the largest percentage believes that this method is only partially achievable and would lead to the desired goal of properly managing biotope in ecotourism.

	Received N	Expected N	Residuals
Yes	50 (16,7%)	100,0	-50,0
Maybe	167 (55,7%)	100,0	67,0
No	83 (27,7%)	100,0	-17,0
Total	300 (100%)		

$\chi^2 = 72,78; SS = 2; p = .000$

Table 5. Digital marketing expressed by reading web articles

Table 5 shows that there is a statistically significant difference in the use of digital marketing by reading web articles or materials in electronic form. Research data indicate that the highest percentage of respondents sometimes resort to this type of education, which is about informing

about bio-path and potential role in ecotourism. Just under a third of respondents do not resort to reading articles of this type.

	Received N	Expected N	Residuals
Low	91 (30,3%)	100,0	-9,0
Medium	166 (55,3%)	100,0	66,0
High	43 (14,3%)	100,0	-57,0
Total	300 (100%)		

$\chi^2 = 76,86; SS = 2; p = .000$

Table 6. Informing about the benefits of biotope management in ecotourism

Table 6 shows that there is a statistically significant difference in terms of information about bio-management in ecotourism. The highest percentage of respondents is medium and poorly informed in terms of biotope management in ecotourism, while a much smaller percentage is well informed.

## DISCUSSION

The hypothesis of this research that digital marketing is a significant tool for promoting sustainable bio-management and that the degree of digital marketing is relatively high has been confirmed. The results have shown that digital marketing is important in spreading awareness about bio-waste management in the population, as well as on the significance of digital marketing of biotope management in ecotourism.

A statistically significant difference that was established in the attitude towards biotope and the selection of biotopes from other types of waste indicates a positive approach to the selection of biotope. In accordance with the results of this research, Pavlovic and associates [7] prove also on the example of the city of Nis, where the market research showed a statistically significant difference in the distribution of respondents' responses regarding the attitude of waste collection. The largest number of respondents claimed to separate biofuels from kitchen and other household waste. Analyzes of existing research in large percentage show that citizens are ready to separate or classify waste if there was a waste disposal system.

This research has proven that most respondents think that television is one of the more powerful media for promoting bio-management in ecotourism. The obtained results are not surprising, especially when taking into account the fact that television is traditionally one of the most powerful media, so it is likely that the respondents from the sample are experiencing it. Since the choice of media type is of great importance in the planning of marketing activities, it is good to work on the environmental awareness of citizens to work with this media. Television is otherwise the main propaganda medium in many countries. According to recently conducted surveys in the European Union, 42% of the population is spending free time watching television, 31% listening to radio, 13% reading daily newspapers, 8% newspapers, while Internet as a medium uses only 10% of the respondents of the population of the European Union.

The assumption that digital tools can be used to a significant extent for the dissemination of educational content related to raising awareness of the importance of sustainable bio-management in ecotourism, the use of digital marketing through the reading of web articles, and the awareness of bio-management in ecotourism has also been proven. Pavlović et al. [7] state that environmental awareness of citizens should be developed through various media such as: televi-

sion, the internet, print media, but also through education in primary and secondary schools and faculties. It also indicates that marketing activities aimed at citizens in order to educate them and raise environmental awareness will be of great importance for the establishment of an efficient bio-management system. This will further lead to an increase in environmental awareness within the local self-government, indirectly, as well as to improving the appearance of public areas and achieving environmental and economic benefits. There will be an insight into the current state and attitude of citizens about their participation in the elimination of the problem of bio-propagation. If the population were adequately and sufficiently informed about the significance of this complex problem, the basis for efficient bio-waste management would be created.

All of this is confirmed by the example of sustainable biotope management and Iran's ecotourism. The advancement of the Internet technology has contributed to increasing the volume of ecotourism marketing. In the last decade, the online marketing has been used to increase the profitability of the Iranian ecotourism industry. There are now many web sites that offer day trips to the natural attractions of Iran. In addition, travel agents have also made special projects with their international partners to attract foreign visitors [6]. Statistics show that the number of tourists in Iran has increased precisely due to online ecotourism marketing websites, which will probably continue as a trend [8]. In recent years, many ecotourism marketing sites have begun to introduce these cultural attractions. Iran has always been known for its historic tourist attractions among foreign travelers, but lately the implementation of online marketing strategies has helped ecotourism in the country attracting more foreign travelers and increasing its annual foreign exchange earnings [8].

One of the best ways to develop ecotourism is to better identify different regions that have the capacity to attract tourists; it is also suggested that the creation of infrastructure in these regions is an important issue. A significant relationship was found between the absence of ads and the marketing of ecotourism and the number of tourists who visited the Bavan Valley, which is the well-known destination of ecotourism in southern Iran.

## CONCLUSION

Digital marketing is an important tool for researching sustainable bio-management. The degree of digital marketing is relatively high, and digital marketing is of great importance in awareness-raising about bio-management in the population, as well as on the importance of digital marketing of biotope management in ecotourism. Television and the Internet most affect the attitude of the respondents on sustainable bio-management in ecotourism.

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