

# Marketing Intelligence and Automation – An Approach Associated with Tourism in Order to Obtain Economic Benefits for a Region

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**Abstract.** Technologies have revolutionized the way campaigns are developed in the digital medium, and how customers search for information and buy products or services. At the same time, the development of technologies has led to an exponential growth of information, a proliferation of data sources, and the emergence of new tools to support the process of building campaigns targeted at customers. In this context, there is a challenge to surmise that technologies can be the solution to improve communication and information dissemination through the development of digital marketing platforms. The platforms automate campaigns, by using and accessing information stored in the tourism and hospitality organizations' Data Warehouse, to perform data analysis that include data mining techniques, bringing this way economic benefits for these organizations. The present article proposes a methodological framework for the development of a Marketing Intelligence Automation system, with the objective to facilitate the management of an integrated marketing strategy for online channels of hospitality and tourism organizations.

**Keywords:** Digital marketing · Marketing intelligence · Marketing automation · Big Data · Tourism organizations

## 1 Introduction

Emerging technologies have dictated new trends in the consumers' behavior and caused changes in the way organizations' act to attain the best position and increase their competitiveness. In this environment, the rapid and complex intervention of the stakeholders working in the hospitality and tourism market is desirable. In addition, extensive marketing expertise is also required to help define strategies in a fast and incisive way, to meet the needs and wants of the market, and guarantee the organizations' success.

For tourism professionals in general, and for those who are positioned in the hospitality industry (marketers and practitioners), the development and operationalization of marketing strategies for the market should consider both the traditional and the digital environment. The digital systems enable to manage in a fast, assisted and automated way, the implementation of marketing strategies, integrated in the various online channels, at the right time, with the right message, for tourism and hospitality organizations.

For these professionals, the disregard for the digital environment needs to be overcome to increase the awareness and to reach the right customers, in the right place, at the right time, and at the right cost, and in the end to ensure the organizations' success.

In this context, there is a need for a system that automates the marketing campaigns to be carried out by practitioners. It must through appropriate techniques obtain intelligence about every organizations' customers and permit the customization of campaigns through a Marketing Intelligence platform.

A Marketing Intelligence system [4] includes the collection of data, aiming to identify similar segments among users and their specific preferences within the segment. Its purpose is to gain insight into the creation of new services or improving existing ones to achieve higher user satisfaction and obtain more economic benefits for tourism and hospitality organizations and their partners.

The presented research in this article aims to contribute to the development of an innovative solution that provides information with more quality to implement automated marketing strategies, through the interpretation of data collected from tourism and hospitality sources, available online and of public access (Big Data); Enabling users to implement effective digital marketing campaigns, through an assistant that guides the user in defining business objectives and designing campaigns associated with the objectives set; Contemplating the integration of feedback mechanisms to improve and complement all the information stored in the knowledge database, through artificial intelligence algorithms that allow a learning of the results obtained in order to incorporate the intelligence acquired in the development of future campaigns. Consequently, to advertise campaigns on several platforms in an intuitive and immediate way, in order to reach the largest number of customers and thus boost sales.

Thus, the objective of this article is to present a methodological framework for the development of a marketing intelligent system for identifying market requirements, developing and presenting performance indicators. This will increase the economic advantages of organizations in the tourism sector, through the optimization of campaigns and the communication process among stakeholders to ensure the success. This article is structured in three sections, the first, highlights the environment provided by the internet to marketers and to the clients. The second, is dedicated to analyze the communication in the digital environment as a key factor for success of any organization. The third section, presents the methodology and steps associated to develop the marketing intelligence platform. In the end, some conclusions will be presented.

## 2 The Environment Provided by the Internet to the Digital Marketing

Technological development has been one of the main drivers for the changes experienced by the economic sector related to tourism, in particular, and for all the economic sectors, in general. The internet has changed the way the stakeholders operate and position themselves within the tourism distribution channel [30], enabling access to tourists' information that supports the entire decision-making process, and at the same time, allowing customers a multi-channel shopping experience.

With the internet the customers have acknowledged spending more time searching and purchasing, when compared with the past years. For example, in the last year, 78% used the internet to search for a holiday destination, 29% relied on friends, family and colleagues, and 40% of purchases were made online [20]. At the same time, 58% of the customers used their smartphones and tablets to purchase products online, 80% watched reviews and rating videos, 68% preferred video products with "people like me", 45% preferred expert video on the subject [20].

With the internet, emerged new tools and mechanisms that potentiated the development of new concepts associated with marketing in the digital medium, which transformed the marketing environment in an interactive way between the customer and the tourism and hospitality providers, where the fixed products are being replaced by other cheap custom, fixed prices are often being replaced by auctions [39], thus becoming more dynamic. At present times, to do marketing it is essential to know the traditional and the digital environment, so that through the various existing tools and platforms [25], one may: (a) reduce costs, (b) increase profits, (c) build customer loyalty.

Moreover, the relationship between traditional and digital marketing [39] is critical, and even more crucial is the need to measured more efficiently organizations' offer, in the various online channels (e.g., email, social media, websites, etc.). In addition, it is necessary to consider digital marketing as a means of communication that allows the managers to develop and build in a more integrated, targeted, measurable way campaigns to capture and retain customers, in a deeper and more lasting way [32, 33]. Relationships derive in part from the access that is provided by the offer to virtual worlds (i.e. immersive experiences) that seek to simulate the real world [25].

To achieve this environment, a marketing platform is required to facilitate the management of an integrated marketing strategy channel, which permits multiple accesses at the same time, e.g., computer, smartphone, tablet, interactive terminal to different clients in different places and in an office which is open 24 h a day.

Deighton [7] states that digital marketing includes direct marketing, which treats and defines clients by their individual characteristics and behaviors; and interactive marketing, which relates to customers and can collect and remember the individual responses. Therefore, a digital platform that integrates the concepts of direct marketing and interactive marketing is needed to the success of the organizations. This platform will potentiate the results by including the methods and tools associated to the models of artificial intelligence and data warehousing. The integration of these methods, tools and concepts, will contribute to the development of a marketing automation platform and at the same time provide intelligence due to the integration of the organization's

database. On the other hand, it is possible to cross-reference data associated with thousands of inputs in real time and provide the support to make the best decisions in a timely manner to optimize marketing strategies.

Thus, organizations continue to embrace digital and technological tools, especially when the focus is on customer engagement [3], because “while the marketing objectives are aimed at differentiation and identification, it is up to the communication to disclose the desired strategic positioning” [34]. At this point, more than any other, the decisive struggle is for the perceptions that are created in the minds of the clients through the various sources of information (induced or organic) [27, 28]. Ignoring this reality can have serious consequences for the success of an organization.

In this context, online positioning as well as online reputation management are essential to increase the competitiveness of an organization [10], for example hotels. For online reputation management and adequate online positioning, i.e., effective and meeting the client’s requirements, each tourism organization should develop a communication plan according to its business strategy [12] to boost its results.

### 3 The Communication in the Digital Environment as the Key to Organizational Success

A communication plan must consider the interests and the nature of each company’s business, starting by defining that it wants to be where its customers are, but also how it intends to advertise its products or services and communicate with [37] them. In this context, it is important to develop a communication plan (in Fig. 1) and to consider the objectives, the target(s), competitors, activities to be developed, timing and results monitoring [12].

Regarding the objectives, for example, the increase of brand awareness or identify, attract new customers and retain existing ones may be underlined. In identifying

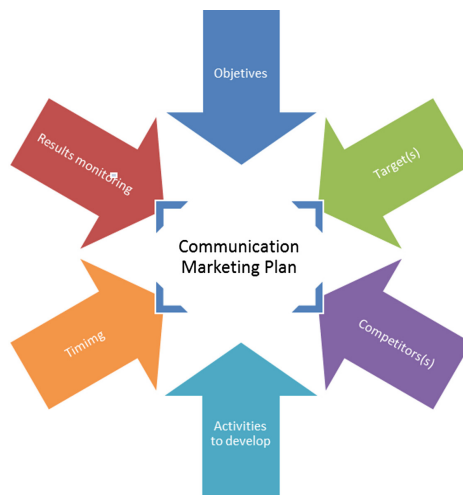


Fig. 1. Communication marketing plan activities. Adapted from Floredu et al. [12].

customer characteristics, it is important to carry out a survey of all attributes that are pertinent to the business and define the profile of each client, current and/or potential. The collection of information is carried out with the aim of creating adequate communication strategies for each client or segment of clients, according to individual or group characteristics [6]. The main competitors play a very important role in defining the communication plan, since their customers are our customers and consequently it is important to know how they attract and engage the online consumer [14, 27].

A communication plan, as presented in the Fig. 1, is built by a set of activities that must be assigned and performed by employees with the appropriate skills to work with maximum efficiency, setting start and end dates, and periodicity for completing their tasks. The timing and follow-up of the activities associated to the plan is very important since it allows the monitoring and analysis of each action, to confirm if the desired objectives are being attained or if adjustments are needed [17, 18]. The monitoring of the campaign results allows managers to measure its degree of success, by controlling the ROI (Return of Investment) to know if the strategy develop is working or not, and if it is according to the organization's goals. Along the steps that need to be taken for the communication plan to be implemented, the need to collect, treat and select the appropriate information is essential. The information associated with traditional marketing alone is no longer enough, claims Schmitt [33], it needs to be complemented with the information associated with marketing carried out in a digital environment [3, 9]. Information associated with marketing grows exponentially every day if we consider the tools and channels marketers have available to them [39], such as social networks or other sites such as Hubspot.

For a tourism or hospitality organizations, efficiency in the campaigns is crucial, in the same way it is to use an application (platform channel) in a timely manner that enables them to access information associated with their online reputation and competitors, so that they may boost the campaigns that they are implementing in the market to meet the needs and preferences of their clients [12].

In this regard, for a manager to have the opportunity to generate campaigns with the conditions mentioned above, he must be equipped with an application that in addition to collecting and organizing information, it must also generate automated analysis, for the creation, management and dissemination of information for the maximum number of consumers [11]. The application referred to above can have marketing automation functionalities, for the collection of customers' information and for the creation of a Data Warehouse, using for this purpose Business Intelligence tools [26]. These tools will enable tourism and hospitality managers to use analytical instruments to create a Marketing Intelligence system, that will provide on time and relevant reporting [36] for campaign building, to reach the greatest number of potential clients.

#### **4 The Methodology to Develop Marketing Intelligence Platforms**

One of the objectives of this study is to respond to a gap already identified in the Portuguese national market [25], which is to develop a marketing intelligence platform that can be used by hospitality and tourism managers to develop marketing strategies,

adapted to the reality of each hotel unit and its target-market customers' expectations. At the same time, the platform requires functions to generate automation of the processes and tasks associated with the development of these campaigns, i.e., greater efficiency to reach the right consumer, at the right place, in the right time and in the right context [5].

The methodology for developing this platform can be defined in three phases: (I) Identify and select all the pertinent source of information considered in the preparation of a marketing campaign to the digital medium, (II) planning and implementation of the marketing intelligence automation system, and (III) defining the main dashboards and management reports associated to the elaboration of the campaigns, as shown in Fig. 2.



**Fig. 2.** Methodology to develop marketing intelligence platforms.

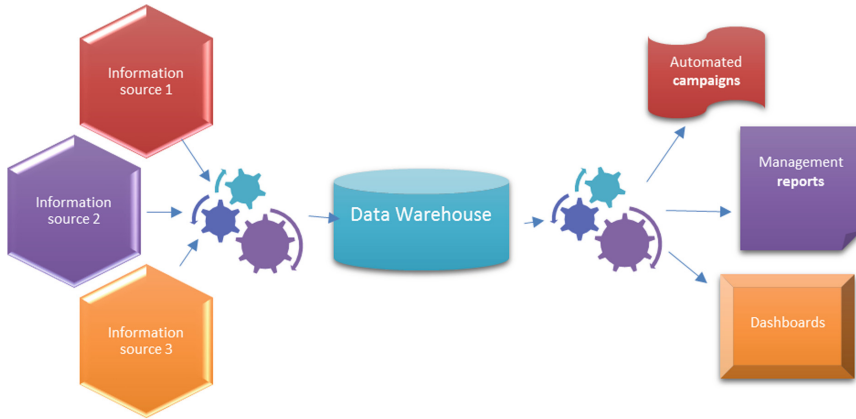
The first phase (I) refers to the research in primary sources, complemented with information present in secondary sources, and identify all the pertinent sources that are considered relevant to create the campaigns.

The second phase (II) comprises the planning and development of the technological solution, which is structured in three stages: (a) Identifying the way to integrate all the different technologies associated to different information sources; (b) definition of the conceptual model of the technological structure to be developed taking into account the functionalities identified previously; and (c) implementation of the application associated with the marketing intelligent automation platform.

The last phase (III) involves the identification of the main analysis models to be considered in the marketing dashboards, and at the same time to be include in the management reporting to support the decision-making process.

The technological architecture considered in the present study must ponder an automated process to collect the data from several sources, internal and external to the organization, transform and upload it in a data warehouse. The data stored in the data warehouse will be used in analytical methods, such as data mining methods, to extract intelligence from the data and to find insights associated to the business, which will be included in strategic dashboards to support the decision-making process and to automate campaigns to each client's target, as shown in Fig. 3.

The marketing intelligence platform should present the key information needed to create and manage an efficient digital marketing plan. The business intelligence marketing campaigns should be composed of five components: (a) 360° view of the



**Fig. 3.** Technological architecture of the marketing intelligent automation system.

customer; (b) customer segmentation; (c) predictive and prescriptive vision; (d) improvement of the existing marketing tool; (e) improvement of ROI (return on investment) and LTV (lifetime value) of the customer [6, 19]. Accurate customer analysis requires accurate marketing data. Clustering of customer data based on different sources may lead to data inconsistency, redundancy, and inefficiency, preventing effective and conscious decision-making. Thus, debugging and standardizing customer data will improve the quality of the analysis and the effectiveness of the initiatives, as well as a faster ROI [22].

After the data transformation (preparation and integration of internal and external databases - market, competitors, customers, SWOT analysis, etc.) for the marketing intelligence platform to use, it will be necessary to perform multidimensional data modeling, to develop a Data Warehouse [15, 16] that allows the storage of the data. In addition to the Data Warehouse [8, 23, 29], it will also be necessary to develop analytical tools based on mathematical formulations and artificial intelligence techniques [31] that allow the segmentation of the hotel clients, provide predictive and prescriptive insight, and improve ROI.

Regarding the automation of the system, this investigation aims to analyze the historical data collected using artificial intelligence (AI) techniques, more specifically using Machine Learning (ML) algorithms [2, 21, 38]. The result of the application of ML will allow the user to be presented with an automated marketing plan, based on the learning process carried out by the system. The ability to accurately measure some of these indicators will significantly increase the overall efficiency and value of strategic initiatives. Thus, the recommendation of actions (marketing campaigns) by the marketing intelligence platform, based on informed choices and reliable information, indicating the impact of each action on LTV and ROI is imperative.

The usability of the marketing intelligence platform to be developed will be another aspect to be consider, for users to work with an intuitive, complete and user-friendly interface, thus contributing to coherent, real-time, integrated decision making, within the User Experience concepts [1, 13] and requirements.

## 5 Conclusions

A better understanding of all the dimensions that influence clients' behavior and their purchasing decisions, is fundamental and has implications for any organization in the service area (e.g. hotels, restaurants, etc.) struggling to be competitive and well-succeed.

Organizational managers need technical knowledge and theoretical skills [24], every day and even more in the near future. However, the demand for these transversal competences on the part of the market demonstrates the lack of solutions or the fragility of existing ones.

However, there is no point in having the best technology and processes if people are not able to collect, treat, and analyze information to communicate more effectively or if they are not able to deliver value to potential customers [35]. Also, no connections between behaviors and consumption habits can be identifiable through normal procedures, even with the know-how, time and resources, without the essential support of Data Warehouses, analytical tools and data mining technics.

In sum, a marketing intelligence platform makes possible for various actions to be performed, from collecting data (for example, hotels, generating a 360° view of the target-market profile), to automating the planning and management of campaigns (through the various channels), without neglecting the communication and distribution which are strategic elements in the tourism and hospitality sectors.

**Acknowledgements.** This work was supported by CEFAGE (PEst-C/EGE/UI4007/2013).

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