

Medical Tourism Marketing Information System

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Abstract - This research aims to study information systems for medical tourism marketing by developing a Medical Tourism Marketing Information System prototype for a trial use by the end-users. We collected answers from nineteen marketing personnel from hospitals located in Bangkok who anticipated to be the end-user of the system. We processed raw data using a ready-made EXCEL program to calculate the level of agreement to the e-factors that affect the success of the Medical Tourism (MT) automated marketing system that should be implemented and the satisfaction of trial users by percentage. The findings were as follows: The “End-user” opinion on factors that affect the success of the MT automated marketing system shows that they strongly agreed that the “Prospects information can be collected from offline traditional marketing and populated into database for further processing”. This is the highest ranking factor of importance by which 100% of respondents agreed at Very high (73.68%) and High levels (26.32%). The opinion of the “End-user” of MT automated marketing system regarding the system prototype trial shows that the most satisfaction is on the “Reach essential online Lead sources as required” (High 68.42%, Moderate 31.58%).

Keywords - *Digital marketing, medical tourism, CJI, traditional marketing, medical procedures.*

I. INTRODUCTION

Medical Tourism is regarding people from one country who wish to travel to another country for medical services in which the country has standard medical services comparable to their own country or possibly better than their country. Often the cost is a lower service fee and the country also has rehabilitation caring provided after the treatment. Medical tourists usually are seeking the following services:

- Cosmetic surgery (Breast, face, liposuction)
- Dentistry (Cosmetic and reconstruction)
- Heart / heart surgery (Bypass, valve replacement)
- Orthopedic surgery (Hip replacement, skin resurfacing, knee replacement, joint surgery)
- Obesity surgery (Stomach, bypass, stomach band)
- Fertility / reproductive system (Artificial insemination, sex change)
- Transplantation of organs, cells, and tissues (Organ transplantation; stem cells)
- Eye surgery

Overall, these treatments are not classified as acute and life-threatening and some are not classified as an important health treatment. Some forms of plastic surgery are considered outside the health boundaries (for example, Cosmetic surgery for aesthetic rather than reconstructive reasons) whilst other treatments of Medical Tourism (such as In-vitro Fertilization) are counted as reported by OECD, 2010.

Medical Tourism [9] is very popular in the medical field and creates a large market for itself because the Medical

Tourism industry market has spread throughout the world. Despite this popularity, it still needs improvements to attract more people.

Today, effective online sales promotion strategies are important for the Medical Tourism sector. Medical online marketing strategies from distributing online promotion programs to media campaigns throughout the country, is an effective tool that can help organizations achieve their desired goals. Social media is one of the best ways to promote a particular brand, especially Medical Tourism.

Online promotions of a particular brand are important because they will create awareness about the services to consumers. In addition, two-way communication is very important in this sector because patients may have doubts about certain treatments, for this, they can connect with experts easily and can help them choose the right treatment. This creates a good relationship between customers and service providers.

Digital marketing is therefore very important in promoting Medical Tourism as a brand that can help the service providers to attract medical tourists. McKinsey reported that the income from Medical Tourism in the global market is as high as about 100 billion dollars in 2012. He also believed that the hospital well-known international, such as Bumrungrad Hospital in Thailand and its network in Singapore is expected to serve 10% of overall patients in the year.

In this paper, the concept of hybrid marketing that combines the traditional offline marketing and online marketing for finding MT leads will be described. The prototype of the hybrid marketing system information system is evaluated.

II. RESEARCH RATIONALE

The major problem of the communication regarding Medical Tourism marketing is that the service agency must be able to implement the integrated end-to-end system. Large hospitals that have the JCI accreditation and have a well-known reputation will have advantages for finding clients consistently while medium-sized and small hospitals with JCI accreditation have no such advantage. Alternatively, the smaller hospitals may invest in digital marketing systems for better competitiveness. Anyway, the problem is how to make the hospital, whether small or large, to be able to conduct commercial medical marketing to attract prospects from various countries to generate medical tourists to Thailand.

III. STATEMENT OF THE PROBLEMS

How to design a digital marketing system that a medical service provider can utilize regardless if they are small or large? The solution may be an approach using the hybrid automated marketing system, mixing traditional offline marketing and online marketing whereby the current online practice is just an automatic e-mailing. But to obtain the contact information for an e-mail from internet tracing will require an intensive effort of people. Thus, the innovation that helps to find medical tourist customers from all over the world is therefore very important.

The Importance of the Problem: The problem of automated marketing, complementing off-line marketing, for finding medical tourists is important because it can be used to find more customers and able to maintain the number of customers at a satisfactory level since this would cover the affluent baby boomers and younger generations. A broader customer base will encourage the expansion of both the number and quality of service providers and may initiate various services in related segments such as Wellness tourism.

A. Objectives of the Study

1. To study how to apply the hybrid marketing system to find customers looking for medical treatment services.
2. To study the requirements of the offline and automated marketing system and the structure of the system.
3. To develop the hybrid marketing system that can inter-operate with other systems.
4. To study the satisfaction of users using the hybrid automated marketing system developed.

B. Review of Literature and Best Practices

Information technology development over the past four decades has changed the method of data processing and data utilization, and it has had a tremendous impact on

businesses due to e-commerce technology automatic digital marketing especially those used in B2B businesses.

From the study of 1,400 B2B companies by Adamson [10] found that buyers process 60% of the purchasing process before contacting the seller - instead of contacting the seller directly from the beginning of the purchase. The reason is that in this internet age the buyer's practice is to conduct information searching from sources over the internet before buying. They do a comparison of prices, quality, and reputation of sellers, particularly, they read various comments in the social media regarding the seller. Furthermore, the role of the seller and the concept of selling has also changed in the business arena.

In general, the marketing problem in this era is the ability to find a lead and to send it into the sales pipeline in order for the sales department to convert the connection from being a lead to a customer. The process can become more challenging from marketing leads, to getting leads, to handling leads, and to moving leads into customers.

C. Buyer Behavior

In this internet age buyer behavior began to change because buyers can easily access information about products and services, Aberdeen Group, a consulting company reported that sales professionals use old methods, namely "Feature / Friendship / price" doesn't work anymore. Because buyers will find good, cheap, quality products from companies that have good customer care. In addition, the seller must also have knowledge in products and services and act as a consultant that provides information about the value that customers will receive from products they sell and can also provide facts about competing products as well.

D. The Role of the Marketing and Sales Department

The role of the marketing department is about communication with customers, branding, and advertising while the role of the sales department involves the management of customer accounts and developing solutions that customers' need [2]

At present, many duties that the sales department is responsible for have become the work of the marketing department. In terms of marketing personnel, there will be more Key Account Manager (KAM) and Strategic Account Manager (SAM) who are responsible for advising customers on the solutions that customers need which has to works more in sales activities. In order for KAM and SAM to be able to take care of customers in business and information technology they must get trained and have experienced in consultative sales. Anyway, the marketing department personnel that are professional sales are quite rare.

E. Technology that Helps Sales

Various technologies have been extensively applied from the past. Biegel [3] concluded that marketing management must have an information system to assist. At present, it can be seen that CRM (Custom Relationship Management) and SFA (Sale Force Automation) systems are very useful in large businesses.

CRM is software that has a very high growth rate. Gartner reports that the heart of CRM is the ability to take care of customers through interaction with vendors, provided that the seller wants to build a good relationship with the customer forever for opportunities whereby customers who obtained impressively good service will remain a customer forever. CRM is a business process that must have and is absolutely necessary to have a customer database in which the buyer can be categorized into subgroups. The complication of segmentation of customer groups into smaller groups is the micro-segmentation which is the strategy that the sales team has to manage. In the end, the system must be able to drill down to take care of any single customer efficiently and effectively.

F. Traditional Marketing Lead Generation

In the traditional marketing side, the mass media will be the source of prospect information and from that, with our proposed system, we will collect the prospect information and populate into the system according to the predefined items and structures.

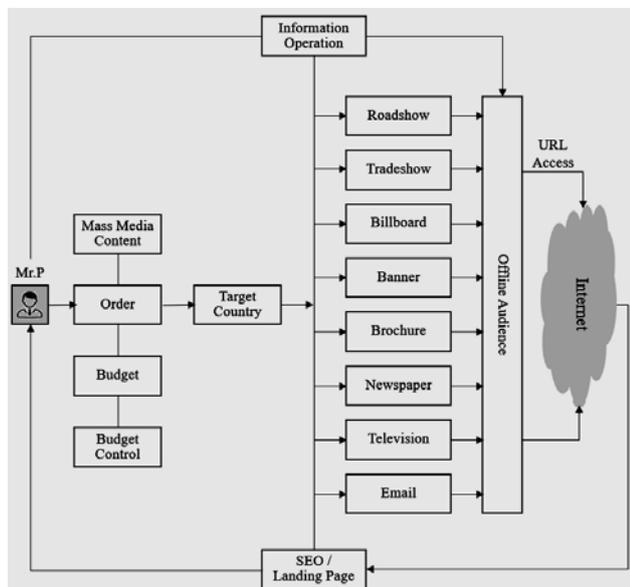


Figure 1. Traditional marketing with digital twin lead generation.

The overall marketing activities in this step will be allocated a budget in order that the performance of marketing lead conversion can be evaluated against the

budget. The processes of the traditional marketing lead generation shown in Figure 1.

G. Cyber Marketing Lead Generation

In the online or cyber marketing side, there will be a digital marketing content creation task. This content will be used to communication with the prospects through our internet channels by which the responses will be automatically retrieved and populated in to the system the same way as the information that is automatically retrieved from other online sources. The overall marketing activities in this step will be allocated with budget in order that the performance of marketing lead conversion can be evaluated against the budget. The processes of the cyber marketing lead generation are shown in Figure 2.

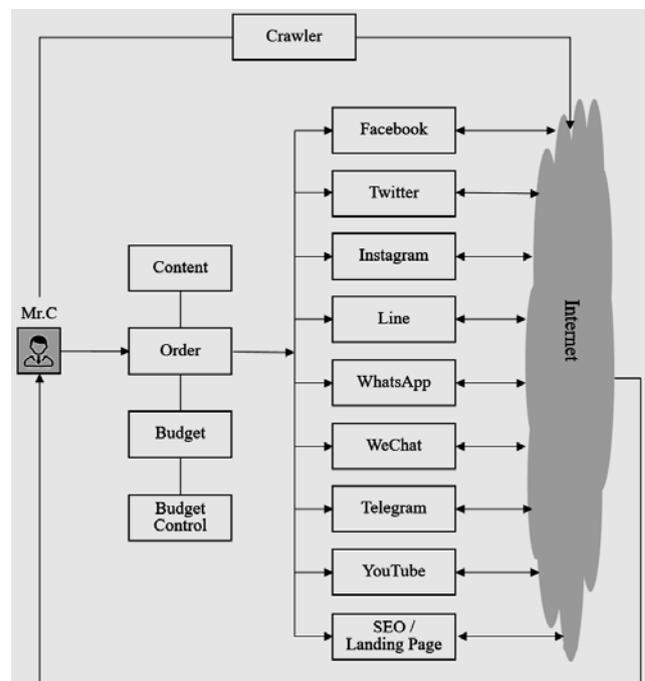


Figure 2. Online or cyber marketing lead generation.

H. Automated Marketing for Medical Tourism

Applying the digital twin marketing model to the medical tourism business and making it automated to become the automated Medical Tourism Marketing Information System will make the whole procedures run seamlessly by the system from lead generation to sales conversion. The 4 main procedures comprise 1) Lead generation, 2) Lead qualification, 3) Lead nurturing and 4) Sales conversion can be elaborated in form of the procedural map and algorithm [1].

IV. RESEARCH METHODOLOGY

In the automated digital marketing that is suitable for finding Medical Tourism customers, one thing that Medical Tourism customer behavior is similar to B2B purchasing is that the buyer must search around for the products in various places, such as trade shows and websites. There must be a price and quality comparison if buying in high volume. In order to find a hospital to provide required medical treatment, the customer needs to search, inquire, visiting the exhibition, or the website that recommends the medical service providers. By this, the Medical Tourism customers will leave enough information for tracing. Whereas if the provider is using social listening mechanism, it might obtain the leads or the shoppers who are searching for countries, hospitals, or services, therefore, the provider needs to use a working group of personnel having digital marketing skills. Authors and Affiliations.

Research procedures

This research employs the following research and development studies:

1. Study and analyze the digital marketing patterns: this aims to study and analyze the pattern of digital marketing via the website, Facebook, Twitter, and Instagram and other social media channels.
2. Study the concept and theory of automated digital marketing
3. Study methods and steps in the design and development of Medical Tourism Marketing Automation (MTMA).
4. Program development process: this involves:
 - 4.1 System architecture analysis and design: To study the digital marketing system analytic performance measurement using Google Analytic and define architectural innovation learnt from research results on business success factors in the supply chain of Medical Tourism.
 - 4.2 Program design: To design the system and functionalities of the program including the interconnectivity of each work area.
 - 4.3 Database design: To study the program systems that needed to be created a database to store data for future uses, especially Marketing Lead, and Sales Lead.
 - 4.4 Display screen design: The design of the display screen must be made from the target group viewpoint in order to attract user satisfaction which will allow the program could be able to commercialize, practically usable and sustainable.
 - 4.5 Program development:
 - a. To develop the functionality of marketing activities collection and responses.
 - b. To develop the functionality of marketing lead processing.
 - c. To develop the functionality of sales lead processing
 - d. To develop the functionality of interconnectivity among all marketing processes.
 - 4.6 Program testing: To perform the program testing to check for correctness and accuracy of the program and do fixing for development errors according to the processes of Unit Test, Integration Test, Performance Test, and User Acceptance Test (UAT).
 - 4.7 Program Implementation: To install the completely tested programs on the host system for trial uses.
 - 4.8 Evaluation from trial users

The evaluation made by trial users collected from questionnaires respondents of the opinions in order for improvement.

The population used in this research is marketing officers or representatives of Medical Tourism marketing who are directly involved in digital marketing. From the 65 hospitals in Thailand that have JCI accredited, we will recruit about 20% of them as the research population group which is around 20 persons. The questionnaires would be distributed to a targeted audience of 19 persons. The researcher divided the questionnaire into 3 parts according to the aspect of analysis as follows:

Part 1: Questions about general information of respondents in a checklist-style to analyze personal demography regarding gender, age, education level, organization, and years of work experience using frequency distribution in percentage.

Part 2: Questions about the level of opinion to factors affecting the automated marketing model and usability satisfaction

Part 3: Questions about the user opinion on their satisfaction of trial use on the Automated Marketing System prototype

V. THE RESULTS OF RESEARCH QUESTIONS

Research Questions

1. How to apply the automated marketing to the Medical Tourism business to find the Medical Tourism customers?
2. What are the factors that affect the success of the Medical Tourism automated marketing system?
3. What is the level of satisfaction of the user on the proposed Medical Tourism automated marketing system prototype?

Research Scope

This research will study and design the marketing automation system and create a system prototype to be used for evaluation of the specified work by sample groups that understand or experience marketing work of finding Medical Tourism customers.

The population used in this research was 19 marketing personnel in Medical service providers (Hospital) located in Bangkok area selected using the Purposive Sampling method.

Assessment

To assess the achievement of the research according to the objectives defined, the author organized the trial use of the MT automated marketing system prototype by the 19 selected sample size and collect their opinions using the questionnaire as mentioned in Chapter 3, as shown in the following paragraphs.

Data Collection

The research instrument is a questionnaire created by the researcher with the assistance of the expert advisors to certify the correctness and integrity of the questionnaire. Information collected using questionnaires divided into 2 parts which are the General information, the expectation of factors that affect the success of the MT automated marketing system and the satisfaction in using the MT automated marketing system prototype.

Data Analysis

The analysis follows the descriptive statistic methodology to find the basic statistics includes a percentage, average (mean), maximum, and minimum value accordingly; and the summation of general characteristics of the population, independent variable, dependent variable and satisfaction for using the MT automated marketing system program.

Data

The respondents of the questionnaire (68.42%) were male while (31.58%) were female. The ages of the respondents were ranked from the highest to the lowest as follows: 31-40 years old (52.63%), 41-50 years old (42.11%), more than 50 years old (5.26%), and no one less than 31 years old (0%) respectively, which indicated that the majority of the respondents (94.74%) were between 31 and 50 years old.

The levels of education of the respondents were ranked from the highest to the lowest as follows: bachelor's degree or equivalent (89.74%), a Master's degree and higher (10.53%), and no one lower than bachelor's degree (0%) respectively.

The respondents' years of experience were ranked from the highest to the lowest as follows: 11-15 years (42.11%), 6-10 years (31.58%), less than 6 years (21.05%), and more than 15 years (5.26%) respectively, which indicated that the majority of the respondents (73.68%) were middle to high experienced.

The user opinion on factors that affect the success of the MT automated marketing system that should be implemented.

Table I is reporting the opinions of the "End-user" on factors that affect the success of the MT automated marketing system by choosing the agreement level they rank the importance of those factors. The result shows that they strongly agreed that the "Prospects information can be collected form offline traditional marketing and populated into database for further processing" the highest importance by which 100% of respondents agreed at Very high (73.68%) and High level (26.32%).

TABLE I. OPINION OF USER ON FACTORS THAT AFFECT THE SUCCESS OF THE MT AUTOMATED MARKETING SYSTEM THAT SHOULD BE IMPLEMENTED.

Factors	5	4	3	2	1
1. Prospects information can be collected form offline traditional marketing and populated into database for further processing	0	14	5	0	0
	0%	73.68%	26.32%	0%	0%
2. Prospects information from selected online sources can be captured as required and populated into database for further processing	0	9	10	0	0
	0%	47.37%	52.63%	0%	0%
3. Prospects information and marketing contents response can be processed automatically for further qualifying processes	0	8	11	0	0
	0%	42.11%	57.89%	0%	0%
4. Leads qualification scoring and issue report can be automatically generated upon preset criteria	0	14	5	0	0
	0%	73.86%	26.32%	0%	0%
5. Marketing content can be created and distributed to disqualified Leads automatically for nurturing	0	10	9	0	0
	0%	52.63%	47.37%	0%	0%
6. Integration to the CRM and other Data Analysis tools	0	11	8	0	0
	0%	57.89%	42.11%	0%	0%

The second the highest importance by which 100% of respondents agreed at Very high (47.37%) and High level (52.63%) is on the "Leads qualification scoring and issue report can be automatically generated upon preset criteria". The lowest importance by which 42.11% of respondents agreed at High level and 57.89% of respondents agreed at Moderate level.

The user opinion on their satisfaction of trial use on the MT automated marketing system prototype.

Table II is the opinion of the "End-user" of MT automated marketing system that participates the system prototype trial and responds to the questionnaire by choosing the satisfaction level they perceived, the result shows that the most satisfactions is on the "Reach essential online Lead sources as required" (High 68.42%, Moderate 31.58%), the second top rank satisfactions are on the

“Prospects information from online sources captured as required” at the score of 57.89% in High level and 42.11% in Moderate level. The answer that falls into the very low satisfaction level is the “Connectivity to other sales support systems available” at the score of 100% because this functionality has not available yet.

TABLE II. OPINION OF USER ON THEIR TRIAL USE ON THE MT AUTOMATED MARKETING SYSTEM PROTOTYPE

Functions	5	4	3	2	1
1. Prospects information being collected form offline traditional marketing and populated into database as required	0	6	13	0	0
	0%	31.58%	68.42%	0%	0%
2. Reach essential online Lead sources as required	0	13	6	0	0
	0%	68.42%	31.58%	0%	0%
3. Prospects information from online sources captured as required	0	11	8	0	0
	0%	57.89%	42.11%	0%	0%
4. Automation of marketing content communications available	0	7	10	2	0
	0%	36.84%	52.63%	10.53%	0%
5. Automation of Lead qualification scoring process Available	0	5	9	5	0
	0%	26.32%	47.37%	26.32%	0%
6. Connectivity to other sales support systems available	0	0	0	0	19
	0%	0%	0%	0%	100%

The opinion of the “End-user” on the success factors they expected to see in the MT automated marketing system by choosing the agreement level they rank the importance of those factors, the result shows that they strongly agreed that the “Prospects information can be collected form offline traditional marketing and populated into database for further processing” the highest importance by which 100% of respondents agreed at Very high (73.68%) and High level (26.32%). The second the highest importance by which 100% of respondents agreed at Very high (47.37%) and High level (52.63%) is on the “Leads qualification scoring and issue report can be automatically generated upon preset criteria”. The lowest importance by which 42.11% of respondents agreed at High level and 57.89% of respondents agreed at Moderate level.

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VI. CONCLUSIONS AND RECOMMENDATIONS

According to the automated marketing system approach and within the research scope of the Medical Tourism Marketing Information System, the automated marketing system will be implemented on the medical services provider information system infrastructure to enable their marketers to accurately target medical tourist prospects with the right messages at the right times. Prospects can be easily discovered from both traditional marketing sources and digital marketing sources based on predefined and configurable rules and can be processed automatically towards the pipeline from lead generation to the sales conversion. As for the future research in this area, social listening and AI deep learning sentiment analysis can be explored to find out if it is effective for generating more leads. In addition, MT influencers can be deployed to generate qualified leads. However, a MT influencer platform might be needed.

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