

# The Architecture of the Medical Tourism Marketing Information System

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**Abstract**— This paper presents the design and implementation of a mixed traditional marketing and digital marketing information system. The objective is to track the investment and yield of obtaining the leads from each side of the marketing activities. By using this system, the medical tourism officer can optimize the yield since each of the target groups in different countries has different ways of consuming the media. Also, the certain footprint of those who seek medical procedures in Thailand might be a traditional person that are not web-savvy. In this case, traditional marketing and influencer would play a pivotal role in introducing to seek information from this system. **Keywords**-Digital marketing; lead; qualified lead; marketing lead; traditional media, social media.

## I. INTRODUCTION

The marketing activities to find the Medical Tourist customer in this study are the mixed system of digital and traditional marketing according to the Digital Twin concept. This approach has two responsible personnel by which Mr.P accounts for the traditional physical component whilst Mr.C responsible for the Cyber Component. Both of them conduct the marketing work to search for prospects who have interest to be a medical tourist, which will be referred to as the Marketing Lead (ML), and finally will be converted to a customer. The areas of activities which Mr.P and Mr.C carry out are exhibited in Figure 1 as follows:

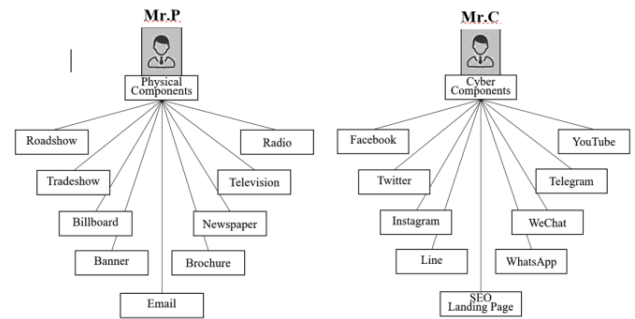


Figure 1. Digital Twin Marketing for Medical Tourism

According to the above figure, Mr.P accounts for the traditional physical component of marketing activities comprises:

- T1 Roadshow activity
- T2 Tradeshow activity
- T3 Billboard advertising at target country
- T4 Banner advertising at target country
- T5 Email marketing to existing customer
- T6 Brochure advertising at target country
- T7 Newspaper advertising at target country
- T8 Television advertising at target country
- T9 Radio advertising at target country

According to the above figure, Mr.C accounts for the digitalized Cyber components of marketing activities comprise:

- D1 Connects to the Facebook data source
- D2 Connects to the Twitter data source
- D3 Connects to the Instagram data source
- D4 Connects to the Line data source
- D5 Collects from SEO / web sites
- D6 Connects to the WhatsApp data source
- D7 Connects to the WeChat data source
- D8 Connects to the Telegram data source
- D9 Connects to the YouTube data source

The proposed system is automated digital marketing for the medical tourism industry. The overall system has 4 steps of 1) Lead generation, 2) Lead qualification, 3) Lead nurturing and 4) Sales conversion. These steps will be exhibited as the Automated Marketing Stack in Figure-22 as follows:

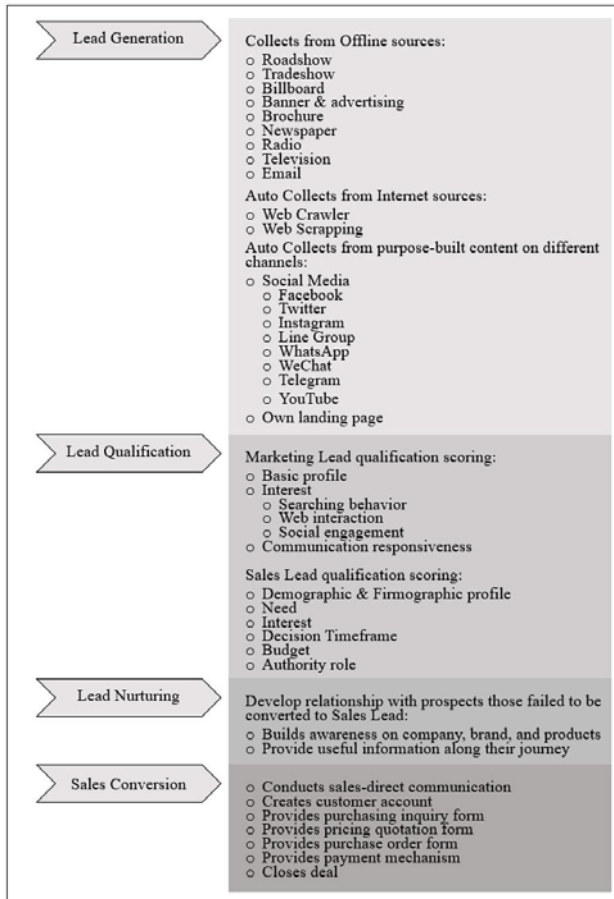


Figure 2. Automated Marketing Stack

## II. LEAD GENERATION

Lead generation is the first step of customer acquisition processes; typically you need to collect the prospect information from various sources, screens it, scores it, nurtures it, and converts it to the customer. Traditionally you need a big team of marketing and sales personnel to cope with the whole process along the pipeline. Now, in this study, we will propose the system that makes the overall processes work automatically by themselves as much as possible, this will make the process faster, consume less human resources, and have more value when comparing the cost against the revenue. (See Figure 3) Ease of Use

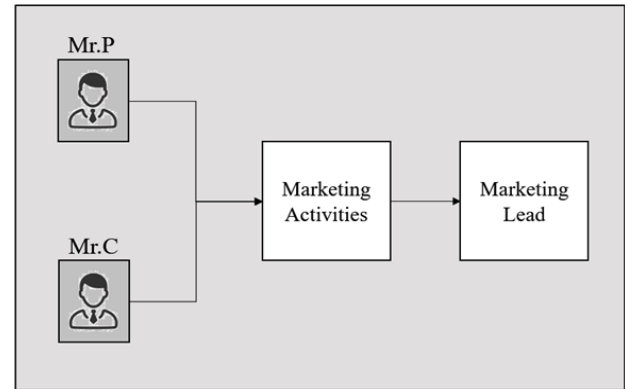


Figure 3. Digital Twin Lead Generation

### A. 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. The overall marketing activities in this step must be allocated with 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 4.

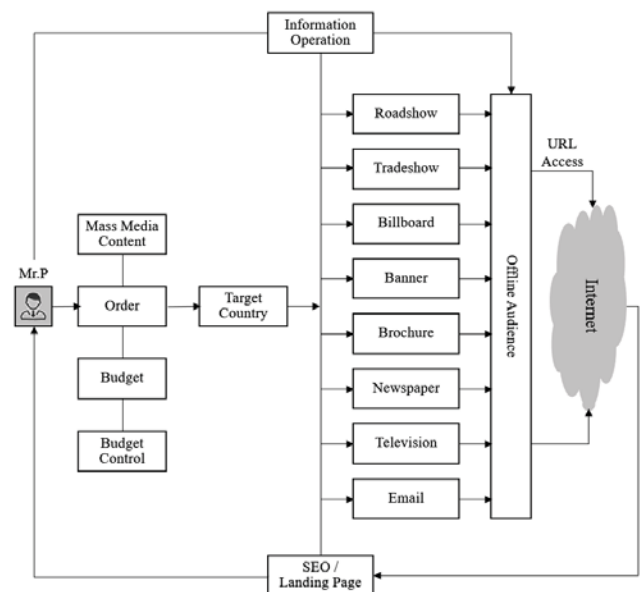


Figure 4. Digital Twin Lead Generation

### B. Cyber Marketing Lead Generation

In the Cyber Marketing side, there will be the digital marketing content creation task. This content will be used to communication with the prospects through our own 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 must be allocated with-in 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 5.

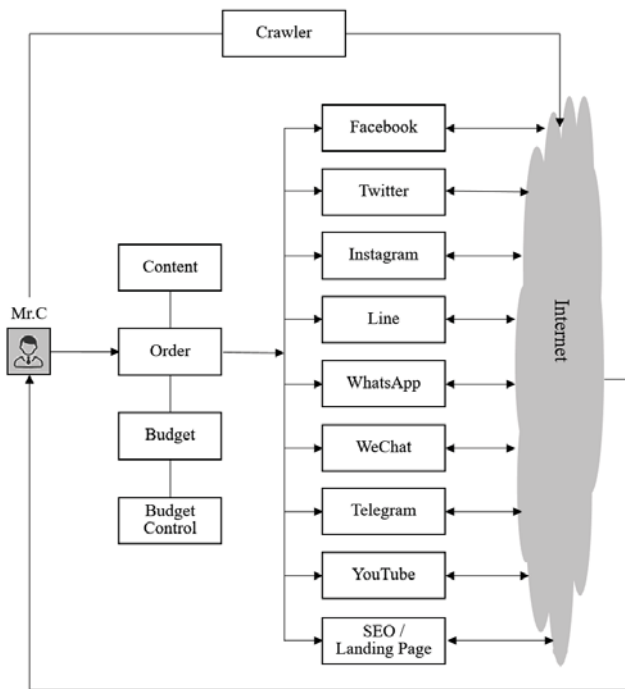


Figure 5. Traditional Marketing Lead Generation

C. 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 as further described.

Automated marketing for medical tourism procedural map and algorithm abbreviations and acronyms.

The following procedures mapping out the Automated Marketing for Medical Tourism system user's procedures into the clearer, top-level diagram. It exhibits the entire end-to-end of user procedures interact with the system.

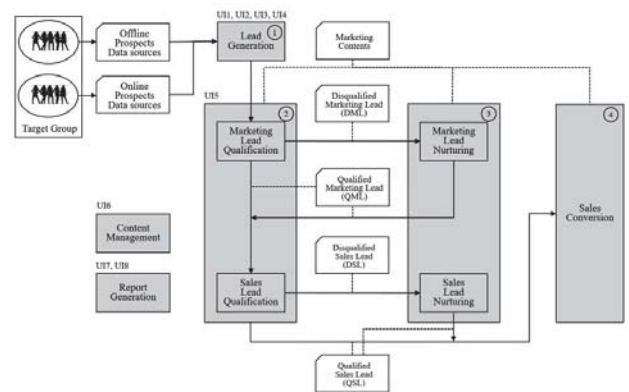


Figure 6. Automated Marketing for Medical Tourism Procedural Map



Figure 7. Simplified Data Flow

The procedures exhibited in Figure 6 above shows the end-to-end procedures of the Automated Marketing for Medical Tourism system in view of the user when they have logged in to the system starting through the end of Sales conversion, the procedures sequence are as follows:

**Procedure-1:** Lead generation. This procedure is to collect the prospects information from both offline sources that acquired through the traditional marketing activities, and from online sources hat acquired from the digital channels via crawler. This can be selected under the Lead generation menu of the system through the user interface screen UI1, UI2, UI3, and UI4 as follows:

1) UI1: This screen is for retrieving data previously populated into the offline prospect information database by specifying the Data Source T1 – Tn as mentioned in Section 4.1, according to the scope of data source details T-01 to T0n to be filtered such as date created, country/area, number of audiences, etc. The filtering rules can be applied to each data item and the rules guidance also provided.

2) UI2: This screen is the successive screen of UI1 for further defining of data field P1- Pn to be retrieved such as Prospect name, gender, address, interest, budget, etc. The filtering rules can be applied to each data item by which the rules guidance also provided. After required criteria completely filled in UI1 and UI2 and has been submitted the database command will be triggered to perform the required task. Output of this procedure will be the offline prospect information according to the specified criteria to be use as Lead data for further steps.

3) UI3: This screen is for retrieving data from online sources D1 – Dn as mentioned in Section 4.1 according to

the scope of data source details D-01 to D-0n such as date created, country/area, number of audiences etc. The filtering rules can be applied to each data item by which the rules guidance also provided.

4) UI4: This screen is the successive screen of UI3 for further defining of data field C1 – Cn to be retrieved such as Prospect name, gender, address, interest, budget, etc. The filtering rules can be applied to each data item and the rules guidance also provided. After required criteria completely filled in UI3 and UI4 and has been submitted the system will trigger Crawler to perform the required task. Output of this procedure will be the online prospect information according to the specified criteria to be use as Lead data for further steps.

**Procedure-2: Lead Qualification.** This procedure is to perform lead scoring for both marketing and sales qualification processes. Input for this procedure is the Lead data from database retrieved from the previous step of UI1- UI4. This procedure can be selected under the Lead qualification menu of the system through the user interface screen UI5 as follows:

- UI5: This screen is for filtering out the part of the Lead list from database instance obtained from Procedure-1 by specifying the offline data source T1 – Tn and online data source D1 – Dn and then select the topic to be scored from the predefined list, for instance Need, Interest, Decision time frame, budget, and decision trigger, and then apply the scoring rule to each topic.

**Procedure-3: Lead Nurturing.** This procedure is the process of developing relationships with disqualified lead at every stage of the sales funnel. It focuses marketing and communication efforts on listening to the needs of prospects, and providing the information and answers they need. With the proposed system the content management module will support the marketing and sales team as the content repository that they can select the desired content then attach to the communication means and deliver to the target Lead.

- UI6: This screen is for selection of the desired content then attaches to the communication means and deliver to the target Lead by specifying content type, content file, location of content file storage, recipient, distribution date and valid duration.

**Procedure-4: Sales Conversion.** This procedure is the operation of deal closing which the support of Reporting module to list out the qualified sales lead for further one-by-one interrogation and tailoring of offer until the qualified sales lead satisfied and agree to buy a service. Ultimately, from this point, the information will be sent towards the other CRM and sales support systems existed for purchasing activities. According to the scope of this

research, information of the qualified sales lead that agreed to buy a service is prepared for further operation of the integrated system but not yet connected.

### III. PROTOTYPE SYSTEM USER INTERFACE SCREEN

#### A. UI0-1: System front page



Figure 8. UI0-1: system front page

#### B. UI0-2: Log-in page



Figure 9. UI0-2: Log-in page

#### C. UI0-3: Main menu



Figure 10. UI0-3: Main menu

D. UI1: Lead Generation – Offline data source (SCR-1)



Figure 11. UI1: Lead Generation – Offline data source (SCR-1)

E. UI2: Lead Generation – Offline data source (SCR-2)

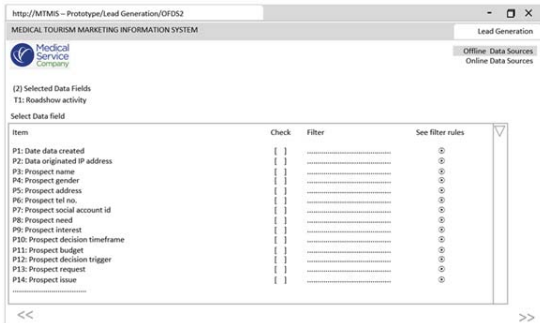


Figure 12. UI2: Lead Generation – Offline data source (SCR-2)

F. UI3: Lead Generation – Online data source (SCR-1)

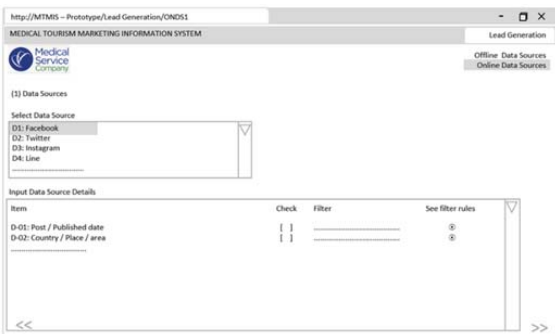


Figure 13. UI3: Lead Generation – Offline data source (SCR-1)

G. UI4: Lead Generation – Online data source (SCR-2)

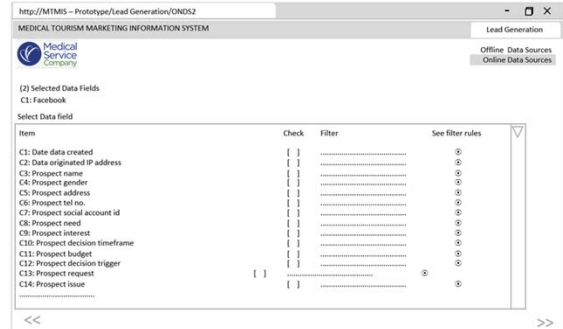


Figure 14. UI4: Lead Generation – Online data source (SCR-2)

H. UI5: Lead Qualification

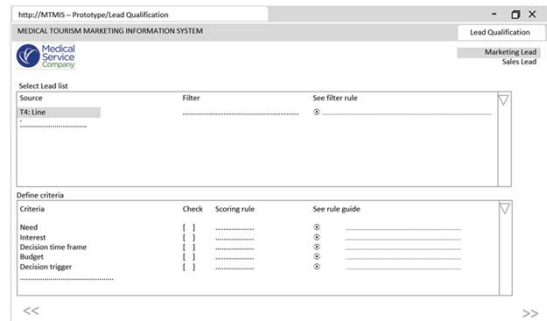


Figure 15. Lead Lead Qualification

I. UI6: Marketing content

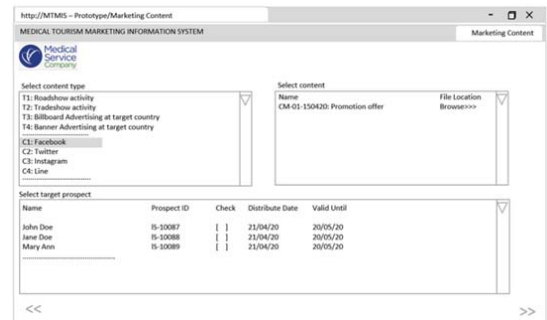


Figure 16. UI6: Marketing content



J. UI7: Report Generation (SCR-1)



Figure 17. UI7: Report Generation (SCR-1)

K. UI8: Report Generation (SCR-2)



UI8: Report Generation (SCR-2)

IV. CONCLUSION

The medical tourism marketing information system as designed and validated by Salem (2020), is a useful tool for medical tourism marketing officer. The system track the leads generated by the traditional marketing and the leads generated by the digital marketing. It is logical that more leads are generated by the digital marketing at present. With digital marketing, an Automated Marketing system can be deployed and can offer numerous benefits by streamlining manual marketing tasks, including lead management, email campaign development and landing page creation. The huge opportunity of this approach that can reach untapped prospects information using crawler will generate the great bottom line of the business significantly, with no struggling and big marketing team.

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