



## **Working Towards a Smart City by Supporting Tourism**

**Sponsored by  
Sisaket Municipality**

**An Interactive Qualifying Project and Interactive Science and Social Project submitted to the Faculty of Worcester Polytechnic Institute and Chulalongkorn University in partial fulfillment of the requirements for the degree of Bachelor of Science.**

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## **Introduction**

### **Working Towards a Smart City by Supporting Tourism**

Smart cities utilize technological solutions that aid in various aspects of working and living in modern societies. Through the use of existing integrated technology, a smart city uses information and statistical data to comprehensively analyze and adaptively improve the quality of life of citizens and maximize efficiency (VESELITSKAYA 2019). A smart city involves characteristics such as smart living, economy, governance, environment, and people (Tekin Bilbil, E. 2017). Smart solutions save time, energy, and money, but they must be integrated into municipal development initiatives that serve everyone equally.

Thailand has been working to develop some of their upcoming cities such as Khon Kaen and Chiang Mai into smart cities, which is part of their Thailand 4.0 Initiative. Digital Economy Promotion Agency (DEPA) helps promote digital technology to enhance Thailand's economy, society, culture, and security. An example of a smart city initiative in Thailand that DEPA was involved in was in Chiang Mai. As part of their smart city initiative, DEPA helped enhance tourist experience, reduce air pollution, and sustain overall development through information and communication technologies (SUCHIT LEESA-NGUANSUK, 2017).

Sisaket is a small city located in northeast Thailand with a population around 40,000 and is one of the poorest cities in the country. Currently, the city makes most of its money through sporting events such as marathons and bike races as well as their annual Durian festival. These are main areas of income for the city besides the agriculture surrounding the city. For tourist attractions, the city is also home to a small number of temples and an aquarium.

Currently, Sisaket municipality is in the process of developing a Line Official Account (Line OA) to accommodate citizens' needs as well as raising citizens' engagement with the municipality. In addition, Sisaket Municipality is planning to propose a smart tourism initiative to the Digital Economy Promotion Agency (DEPA) in the form of Sisaket (SSK) Tourism Hub, which is a name that the municipality plans to use for their tourism application, which will be

separate from the Sisaket Municipality main Line OA. The city of Sisaket is one of the poorest cities in the country and needs economic boost through tourism. By implementing smart solutions, the city can benefit economically and socially, which will help increase the quality of life for their citizens. Transforming Sisaket into a smart city will also be beneficial to tourists due to accessibility to data, communication methods, and information that helps improve their experience in Sisaket.

Our project goal is to construct a framework of Line OA for tourism in Sisaket. This OA, separate from the municipality's primary Line OA, will provide information about tourist attractions, restaurants, accommodations, events and activities, transportation, and news to tourists. To achieve our goals, we investigated the current status of tourism in Sisaket, identified information needs of Sisaket visitors, and developed a framework for the Line Official Account for the municipality. This was done through background research, interviewing municipality officials, Chamber of Commerce representatives, and the municipality's tourism application project manager, and experiential observation. Data collected through interviews, experiential observations, and case studies have been analyzed and used to propose a prototype which highlights the functionality and capabilities of a Line Official Account that will be available to the tourists and citizens of Sisaket.

## **Background**

Our project revolves around developing Sisaket into a smart city through the aspect of smart tourism by developing a LINE Official Account for tourism. In order to do so, the team conducted background research on smart cities, smart city case studies in Thailand, Sisaket City, tourism websites, as well as LINE Official Accounts. This background research helped direct our project towards developing a framework for Sisaket Municipality's tourism LINE OA.

### **2.1 Smart City**

A “smart city” is a broad term that can be broken into aspects such as environment, economy, mobility, energy, people, living, tourism, and governance. This term has been defined several different ways by different city planners around the world. Through the use of existing integrated technology, a smart city uses information and statistical data to comprehensively analyze and adaptively improve the quality of life of citizens and maximize efficiency, which will play a significant role in the living in Sisaket, for both citizens and tourists. Quality of life is the measure of health, happiness, and comfort for a group or individual.

#### **2.1.1 Smart City Case Studies**

##### **Khon Kaen, Thailand**

Part of the Thailand 4.0 initiative is to develop 100 new smart cities (The ASEAN Post, 2021). In consultation with experts at Chulalongkorn University in Bangkok, Thailand, they recommended potential smart cities, and Khon Kaen was one of the chosen cities (Taweesaengsakulthai et al., 2019). Part of the reason Khon Kaen was chosen was because the city was rapidly urbanized after the Vietnam war ended (Sudhipongpracha, 2019). Given its rapid growth, the Digital Economy Promotion Agency (DEPA) wanted to make sure that it grew in the most efficient way, which they decided was in the direction of a smart city. Khon Kaen does not receive much tourism compared to Thailand's other smart cities such as Chiang Mai and Phuket. In 2015, Khon Kaen had 3.9 million tourists, compared to Chiang Mai's 9 million and

Phuket's 13 million. Instead, Khon Kaen focused on social services like education, medical and business (Taweesaengsakulthai et al., 2019) The city embraced the central idea of a smart city: local problem solving.

The strategy of Khon Kaen's framework was having a council, usually hosted by local higher education institutions, consisting of local business leaders, the mayor, and community leaders. They come together every few years to discuss the city's most pressing issues. In 2012, the council recognized traffic as an issue that affected all these stakeholders (Taweesaengsakulthai et al., 2019) This is an example of a "smart" council because it adaptively solved problems in the city with use of data. Once the traffic problem was identified, a solution was proposed to the central government of Thailand for financial and organization support. Instead of support, the council was met with empty promises. As a result, in 2018, the Khon Kaen local government proposed a Light Rail Transit (LRT) system that would span five different municipalities (Kamnuansilpa, 2020). The project was initially discussed in 2012 and did not make any construction progress until March 2019. The LRT system helps improve the quality of life of the citizens by making transportation more accessible and efficient.

Small to medium sized cities like Khon Kaen have difficulty developing into a smart city for several reasons. One reason that Khon Kaen failed to show progress was because communication between the local and central government was not productive. Larger cities like Bangkok are the central government's main concern, so larger cities receive more budget and attention. Thailand 4.0 initiative was successful in promoting the use of technology to improve national security, prosperity, and sustainable development (Taweesaengsakulthai, 2019) in Thailand's large cities. However, in terms of the Khon Kaen situation, when the local business and local government first proposed the LRT system to the central government, they were met with vague promises and small budget allocations. Because the LRT entered five different municipalities, the local government needed a grant to access the land, as well as financial support from the central government. This problem of government communication, coordination, cooperation, and budgeting becomes especially apparent in smaller cities. Relating this case

study to Sisaket, we should be concerned about the size of the city because it will not get the support required to implement smart solutions.

### **Chiang Mai, Thailand**

Chiang Mai is the second largest city in Thailand and is the biggest economic producer in northern Thailand. It is also ranked in the top 15 cities in the world for leisure and travel. Because this city is in Thailand and because of its adherence to the smart city model, this means that other aspiring cities in Thailand can use this phenomenally successful city as a model. Being a large city, Chiang Mai has the budget to accomplish many smart city development projects. A few smart city aspects that Chiang Mai chose to focus on are enhancing tourist experience, reducing air pollution and sustaining overall development through the use of information and communications technology according to a branch manager from DEPA (SUCHIT LEESA-NGUANSUK, 2017).

A study of Chiang Mai's transportation infrastructure found that communication and adaptation created a positive influence of quality cooperation (Thipwong 2020). Quality cooperation, in the study, is defined as meaningful engagement in the transportation sector of the supply chain, by the government, customers/citizens, and entrepreneurs. It is important that many stakeholders cooperate in transportation services for the city's supply chain because this means active engagement in the economy. A factor that contributes to positive quality cooperation is communication, which is the use of social media, email marketing, mobile applications, and websites, to integrate a better experience for users.

Cities like Chiang Mai have substantial electricity consumption because of the sheer size of the city. The amount of electricity consumption plays a significant role in smart city development because smart cities work towards a cleaner and more sustainable future, however, most of the world's electricity production is not clean nor sustainable, with ~73.5% of the world still using non-renewable energy. Cities amount for about 75% to 80% of all greenhouse gas emissions (Sugsaisakon, 2021). The city used this data on unclean energy production and realized that this would negatively impact the quality of life of citizens, so they adapted by

proposing a solution. Chiang Mai proposed a “master plan” to reduce the amount of greenhouse gas emissions (Sugsaisakon, 2021). In this plan, Chiang Mai intends to increase energy saving devices such as LED (Light Emitting Diode) light and energy efficient appliances, as well as implement renewable energy like solar power. In a study, it was found that if the primary plan becomes successful, it will reduce the amount of greenhouse gas emissions by 5.83%. As part of the smart city initiative in Chiang Mai, reducing emissions and improving air quality focuses on increasing the quality of life for the citizens of Chiang Mai. This specifically is addressed with sustainable technologies that help improve tourism, health and the environment, therefore working towards fulfilling citizen satisfaction of quality of life.

### **2.1.2 DEPA - Digital Economy Promotion Agency**

Digital Economy Promotion Agency (DEPA) is a state agency that promotes digital technology to enhance the country’s economy, society, culture, and security. Their main duty is to prepare a digital economy strategy as well as support any measures in the development of digital technology, in accordance with the country’s law and regulations. One of DEPA’s duties is also to fund digital economy in all aspects: manpower, community, scholarship, R & D and innovation, event & marketing, startup, infrastructure, and transformation fund for community (Depa Thailand, n.d.). Other actions of DEPA may include smart visas to help attract international experts to invest in the targeted industries, or tax 200% measures that aim to support Small and Medium Enterprises (SME) by awarding to those who purchase computer programs of developers associated with DEPA (Depa Thailand, n.d.) .

### **2.1.3 Smart City Goals and Plans in Sisaket**

Currently, Sisaket is in the smart city promotion zone which reflects the city’s potential to be developed into a smart city. Sisaket has taken the focus of smart living through the five aspects of tourism: attractions, accommodations, events, transportation and restaurants. Presently, the Sisaket municipality is working to develop an efficient and innovative

communication system where they can provide information to the account's friends and followers, thereby, promoting smart living because the system is continuously used throughout daily life. This action is done through a Line Official Account (Line OA). To address these focuses a prototype of a potential chatbot that generates automated messages according to specific keywords and actions from the user can be developed. In addition to the current Line OA that Sisaket aims to promote smart governance, the municipality also aims to strengthen and improve the city's economy through Sisaket's Line OA for tourism.

## **2.2 Sisaket's Municipality**

The municipality currently focuses on tourism through events such as sport events, marathons, bike races, and a durian festival in addition to attractions like temples and parks. The municipality oversees everything in the province, from economy to transportation. It has been developing in line with its main vision of "a livable, healthy, educated, and self-sufficient city." Its government policy has a national development strategy, where the national economic and social, regional, provincial, and local development plans, all of which aim to provide efficient and worthwhile results for Sisaket citizens. To achieve these goals, the municipality expects all departments to collaborate in ideation, development, and verification. Their expected goal is to qualify as a smart city by having a smart environment, smart governance, and smart people in a livable city.

## **2.3 Smart Tourism**

Under smart living, our plan is to focus on the aspect of smart tourism. Smart tourism in Sisaket will focus on improving the daily lives of tourists traveling throughout the city via technology. This application will help Sisaket's initiative in smart tourism as it assists in tourist experience. Ideally, this application will allow tourists to get information on local attractions, accommodations, restaurants, events and activities, and transportation. These issues will be reportable through the mobile application, to the municipality.

### **2.3.1. Sisaket Website**

Sisaket municipality already created a website named “Sisaket Municipality”. This website includes tourist information. They provide information about hotels, restaurants, events, and tourist attractions. The website itself is insecure and the website looks unreliable and outdated. Our team is looking for an alternative which is Line OA.

### **2.3.2 Tourism Website Case Studies**

Tourism websites are typically used to help give tourists information about the location in order to make their trip easier and help plan out where they want to go. One example of a tourism website is called Wikivoyage, an extension of Wikipedia focusing on tourism. The Sisaket Travel Guide on Wikivoyage provides information about the description of the city, how to get into and around the city, tourist attractions, activities, things to buy, local food, restaurants and bars, and accommodations (Wikivoyage, *Sisaket – Travel Guide at Wikivoyage*, n.d.). Under each of the categories, the site provides descriptions about the different aspects of Sisaket which helps the tourists understand more about the city.

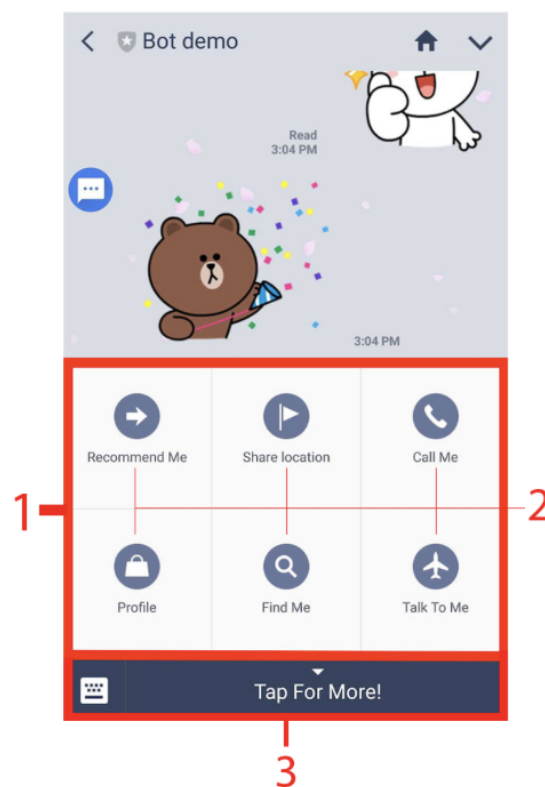
Another known example of a tourism website is TripAdvisor (TripAdvisor, *Sisaket 2022: Best of Sisaket, Thailand Tourism - Tripadvisor*, n.d.). TripAdvisor lists hotels, vacation rentals (i.e cars), restaurants, things to do, tours and tickets, and airlines. This website is convenient because the services are available all on the same website. In addition, reviews and ratings are also shown, which gives tourists options to choose from when it comes to restaurants or hotels.

## **2.4 Line Official Account (Line OA)**

LINE is a free calling and messaging app widely used in Thailand. As of 2021, there are over 50 million users in Thailand (Seangwarin, N., 2021). And, since the Thailand population is over 66 million, the percentage of Line users in Thailand is 75%, making Line one of the most



essential smartphone applications for daily use (Thailand Board of Investment, 2022). Originally, Line has been based to serve as a communication platform; however, lifestyle and business service platforms have been added to enhance its usage through what is known as Line Official Accounts (Line OA). Line OA allows businesses to broadcast information to customers, as well as customizing features such as giving coupons, reward cards, chatbots, making payment, etc. In addition, Line OA has rich menus which act to redirect users to external websites. The rich menus (“rich” meaning full of information relating to the organization) are similar to embedded links that the user may click on when using Google. This feature of the Line Official Account presents 6 possible functions that the municipality can design according to a certain theme. This menu is just like other menus, however a lot of organizations personalize with different logos for the six potential options. The button, when tapped, allows for the rich menu to toggle in and out of the screen.



*Figure 1: Line OA Rich Menu Example (Using Rich Menus, n.d.)*

## **2.5 Sisaket Municipality Smart Governance App**

The Sisaket municipality had a smart governance application that allowed their government to better communicate with their citizens as well as raising citizens' engagement. The application had features including complaint requests, community webboards, and city news. The premise of the app was to create a connection between the government and its people, using collected data and ICT technologies for a better quality of life: the overall objective of a smart city. The concept was good, however, the application failed for several general reasons. One, the application was outdated and many citizens did not want to continue using the app. Two, the application required special admin training, which was not provided to the officials; this also meant that a change in staff required more training. Three, there was little to no advertising for the app so very few citizens used the app. And lastly, the application cost money to maintain which the municipality did not want to continue, as they saw it as a useless endeavor.

## **Data Gathering For Application Development**

The overall goal of a smart city is to improve the quality of life of the citizens. Our project goal was to help the Sisaket Municipality take steps towards becoming a smart city through the aspect of smart economy focusing on smart tourism, via Line OA. To achieve this, we proposed a framework, features and prototype design of the Line OA platform for tourism in Sisaket city. We gathered essential information through experiential observation and interviews. The information allowed us to propose applicable and feasible features for the Sisaket's Tourism Line OA that make the city experience more efficient for Sisaket's tourists. To work towards our goal, three objectives were identified:

Objective 1: Assess Availability of Tourist Information in Sisaket

Objective 2: Identify Information Needs of Sisaket Visitors

Objective 3: Develop a Framework for the Line Official Account

### **Objective 1: Assess Availability of Tourist Information in Sisaket**

Before proposing anything, the foundation and understanding of the information tourists need when traveling to or through Sisaket must be set. The most effective proposal for Sisaket City is a Sisaket Tourism Line OA. We identified what, where, and why tourists travel to Sisaket in order to understand the different perspectives of tourists and be able to identify their needs and features in the Line OA. This was done through background research as well as interviews.

### **3.1.1 Understood tourist's behavior**

The team carried out a background research to see what attractions tourists typically go to when in Sisaket, through credible traveling websites. Using the information collected, we were able to travel to specific locations to gather obstacles we came across as tourists in order to identify potential question areas that tourists would need more information on. From this, we investigated five specific aspects of tourism: attractions, accommodations, events, transportation, and restaurants.

The team also looked into another Line OA as part of background research. This was done to identify what other information Line OA uses to promote the city as well as what kind of features exist in the account. With these identified features, we were able to gain input on the importance of including such features in the tourism Line OA for Sisaket.

### **3.1.2 Information concerning Sisaket Tourism**

Interviewing a representative from the Chamber of Commerce allowed us to understand the current situation of tourism in Sisaket. This interview addressed what information the Sisaket municipality is providing for tourists as well as data on why people are traveling to the city. We also got information on how tourist attractions are currently being publicized in Sisaket in order to more effectively promote tourism. The Chamber of Commerce plays an important part in tourism in Sisaket as they have collected data on popular tourist attractions throughout the province. This allowed the team to understand why tourists travel to the city and aspects of tourism that need development. The team assessed the data received from the Chamber of Commerce to understand what aspects of tourism should be highlighted in the Line OA. The questions are presented in the appendix.

### **3.1.3 Interviewing the Tourism Application Project Representative**

By interviewing the tourism application project representative, we were able to get more insight on the municipality's expectations for tourism in Sisaket. These expectations will include their focus for features and functions for the application, the importance of these features, and why it was selected as a focus. This helped us develop criteria for selecting the scope of functionality that the Line OA would encompass.

### **Objective 2: Identify Informational Needs of Sisaket Visitors**

Before implementing anything in the Line OA, our group identified the needed features and information for Sisaket visitors. From the Chamber of Commerce and the tourism application manager of the Sisaket municipality, our team gathered information on expectations for the application and their perspective on tourism respectively. Furthermore, the team visited tourist locations in Sisaket to observe from a tourist's perspective. We surveyed popular tourist attractions as tourists by conducting experiential observation in areas around the city using preliminary background research. During our visits as tourists to the sites, we identified what types of information tourists might need when traveling in Sisaket.

### **3.2.1 Gathering Data Through Experiential Observation**

To provide a mockup application that satisfies the needs of the tourists in Sisaket, the team must understand the viewpoints of the tourists. Through experiential observation in Sisaket, the team gathered information on specific attractions in the province. By touring attractions around the province, the information gathered can be applied to attractions within the city. This information surrounds areas of confusion for tourists as well as possible areas for promoting tourism in Sisaket. This helped the team propose

suitable features to implement in Sisaket's Tourism Line OA. Furthermore, this made a helpful source of information for tourists and built on a strong foundation of digitized tourism for the municipality's further development.

### **Objective 3: Develop a Framework for the Line Official Account**

The main focus of this project is to design a tangible and robust framework for features which will be implemented into Line OA to promote tourism in Sisaket as well as enhance the user traveling experience. The city of Sisaket can then move towards a brighter smart city through a smart economy. The team examined Line OA and other tourism platforms such as mobile applications and websites to analyze crucial features and ways to improve the ease of tourism impacting the smart economy aspect of Sisaket. Each smart city considered the following factors: explanation of how different platforms work, stakeholders involved, framework and cost. The team proposed practical features through adopting and adapting ideas from other case studies, mainly tourism digitalization. The team used the researched tourism features as a guideline for designing an intuitive and simple framework in Line OA. These new features must fit the context of Sisaket city as well as the municipality's capabilities. Respectively, the frameworks from these case studies allowed the team to understand and experience how tourism works in Sisaket better for a further needs assessment. Once the team obtained results from observation and interview objectives, the frameworks and features for Sisaket's tourism Line OA as well as resources, costs or extra stakeholders involved then were discussed and analyzed for further steps. We considered the suggested features and opinions from the interviewee and focus group and how it would modify our proposed mockup. The resources involved include the LINE Developers which will be used to create the prototype for the application. The cost should be minimal since the municipality does not want to spend too much money on developing the application, and there has not been a specified budget. As seen in figure 2, the base cost of a Line OA is free and can be upgraded based on the plan the municipality wants. With all the information the team gathers, a prototype for Sisaket's Line OA was developed.

|                              | FREE  | BASIC              | PRO                |
|------------------------------|-------|--------------------|--------------------|
| Price                        | -     | 1,200 THB*         | 1,500 THB*         |
| Number of broadcast message  | 1,000 | 15,000 Messages    | 35,000 Messages    |
| Additional price per message | -     | 0.08 THB* /Message | 0.04 THB* /Message |

\*This price dose not include VAT 7%

\*Monthly plan cannot purchase on iOS, please purchase via LINE Official Account Manager at [manager.line.biz](https://manager.line.biz)

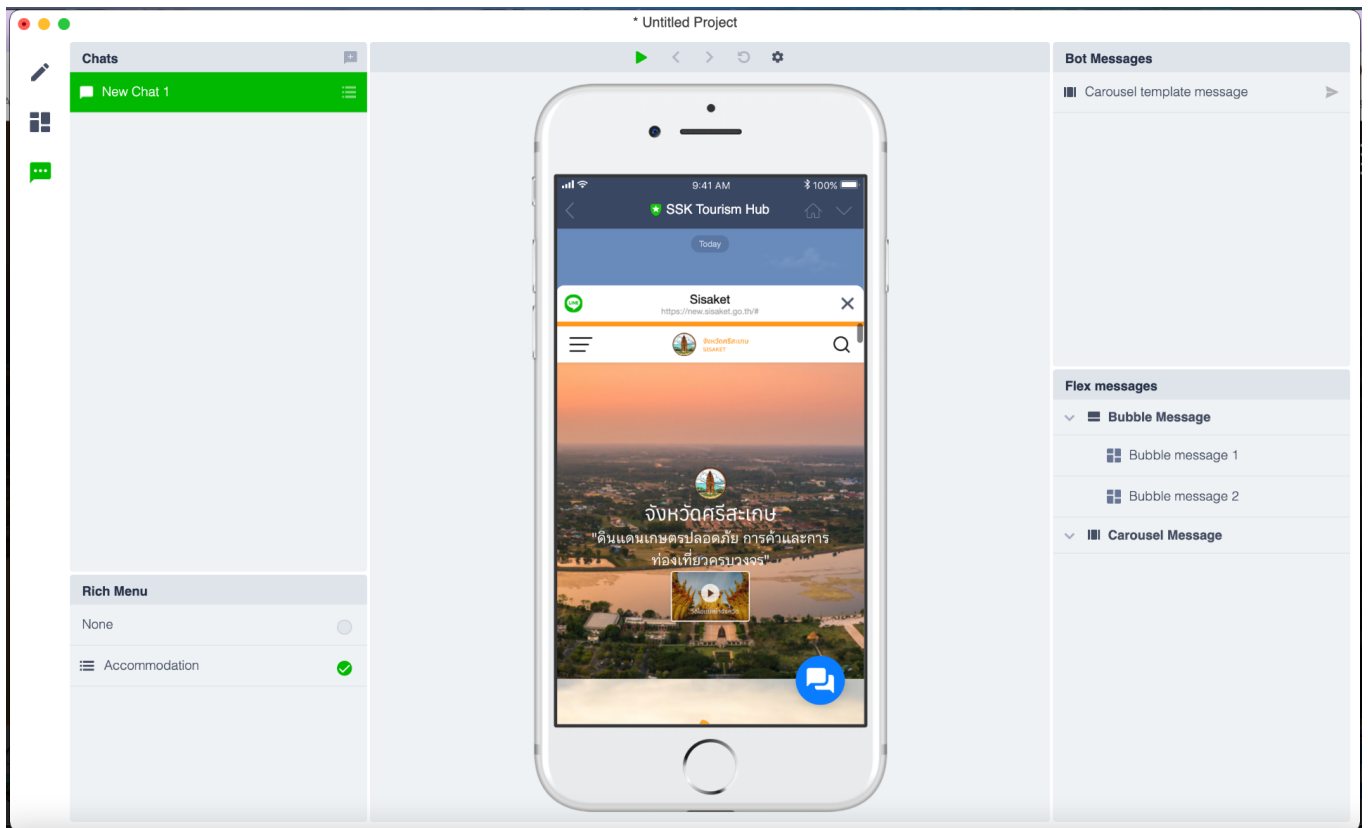
*Figure 2: Line Official Account subscription plans for Thai users. Includes the monthly fees and what is included in each subscription package. The different plans are listed at the top of three categories, where on the left hand side the different specifications are listed. Pricing is listed in the grid view.*

### 3.3.1 Designing a mock prototype of the final frameworks for Sisaket’s Tourism Line OA

A mock prototype for visualizing final frameworks on Sisaket’s Tourism Line OA was developed via LINE Developers. It was proposed to Sisaket’s municipality and related stakeholders for their consideration. The prototype was finalized from the team's evaluated features and results from our interviews and first user experience. A prototype for the frameworks helped illustrate a concrete visual of the proposed Line OA as well as construct a substantial route for Sisaket municipality to further develop this digitized tourism in various platforms. Figure 3 shows the LINE Bot Designer app that is used for designing a prototype for SSK Tourism Hub Line OA. The figure depicts the application that the team used to construct potential messages sent by the chatbot and a rich menu for multiple functions. On the left with the pencil icon, four squares and chat, we have the directory. We also had the chance to create new simulations of different potential chats that the Line OA can present. In the center, we have the virtual phone that will display the chats with a play/pause button to start the automated simulation. On the right we have the bot messages that the user may create and send through the simulation to picture the

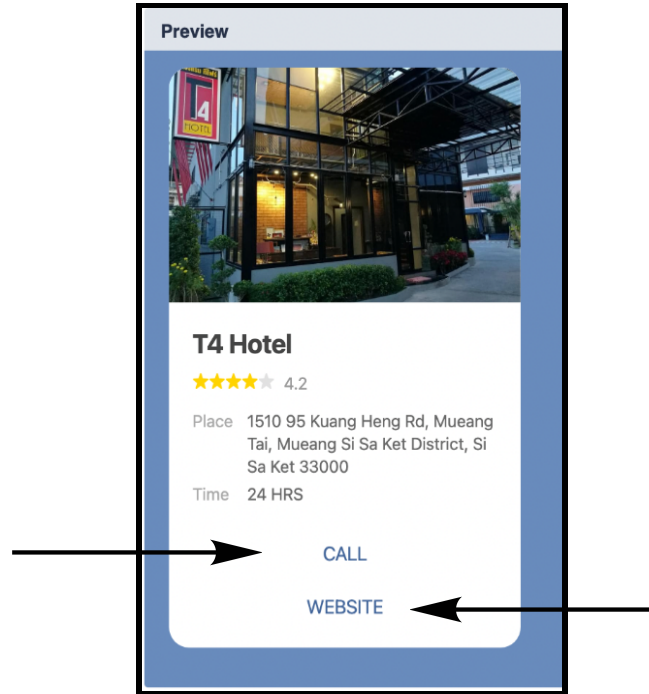
potential questions and answers. Similarly, Figure 4, presents a bubble message with information pertaining to the bolded name with button options to contact the location directly, or access an available website. The Line Bot Designer allows for full customization for the buttons and any information that is essential to display.

The team used this application to form a framework for the municipality, along with other added features that the team had analyzed would be beneficial for tourists in Sisaket.



**Figure 3** : LINE Bot Designer app for designing a SSK Tourism Hub Line OA prototype





*Figure 4 : Example of the Line Bot Designer previewing a bubble message with information pertaining to the T4 Hotel with button (created in blue-text) options to contact the hotel directly, or access their available website.*

## **Findings and analysis on Line OA potentials for smart tourism**

### **4. Findings**

In this chapter, we will discuss the results and information we obtained from the background research, interviews, focus groups and first hand experience. Our project works to answer Sisaket's underlying wish to become a smart city. Specifically, we have designed a Line OA for the municipality of Sisaket revolving around smart tourism. The team will discuss how Line OA is the ideal application for smart tourism, the important features, importance of promoting and ways of promoting the account. By identifying the common features from well known travel websites, we were able to include certain features that are necessary for tourists and needed features that would make it stand out from others. We will discuss our findings on how to effectively promote Tourism Line OA and how it is measured to be successful. Ultimately, it will allow us to discuss why Line OA will be the best option for Sisaket City.

#### **4.1 The Use of Line OA as a Smart Tourism Tool:**

As discussed earlier, in the past the municipality created a mobile application that failed due to several reasons which will not be repeated here. In this section, we will discuss what lessons can be taken from the smart governance mobile application. In a discussion with the municipality representative, he suggested using a different platform such as Line OA. Our team agrees that if the municipality wants to work toward a more connected city given the current limitations, then they should proceed with the LINE OA idea. The LINE OA will have solved all four of the problems that were associated with the downfall of the smart governance application. As discussed earlier, many Thai people already use LINE, meaning that this application is actively being updated by a large company, which means constant updates to errors and quality of life features. This solves the first two problems of the Sisaket smart governance application.




Furthermore, since we are focusing on Thai tourists, this removes the need to advertise the application itself, pseudo solving the third problem. It is still required that the municipality advertise the tourist LINE account. For Sisaket city, we have chosen to focus on a smaller scale, focusing on Thai tourists, to improve the experience of touring for those who already travel through Sisaket City. According to our prior research, the Division of Tourism and Sports Economy and the Ministry of Tourism in Sports recorded that from 2015-2019, around 98% of tourists that travel to Sisaket Province are Thai, the other two percent are foreigners outside Thailand. From this data, Thai tourists are the main target group for the Line OA. Limiting our scope will make it easier to advertise the LINE OA.

In order to start making Sisaket into a smart tourist city, the municipality must focus on the group of people that can be influenced the most with as little budget as possible. We chose to focus on Thai tourists, because we will use existing frameworks that will save the municipality money, specifically we are proposing to use QR codes that redirect to LINE OAs. This solves the fourth reason for the municipal app failing. LINE OA is an existing framework, meaning that it will cost money to subscribe and use it, costing 2.5 thousand baht a month for a year subscription. This does not cost as much as online promotions. For reference, Small and Medium-sized Enterprises (SME) typically spend 300 to 325 thousand baht a month for advertising on Google (Maake R., 2020). Focusing on such a narrow scope is low risk, low reward which is perfect as a step towards becoming a smart city. We learned from a discussion with a municipality representative that they do not currently collect useful data on tourists, which is essential for Sisaket to be a smart tourist city. Getting practice on a small scale is a much safer option, given the low budget of Sisaket municipality. The municipality can spend less budget using the Line OA as a tool for promotion of tourism and efficient tourism, as compared to Google promotion which would broaden the scope of tourists making it more disseminated in a general context rather than focusing on smart tourism of Thai tourists. As a promotion and advertising strategy, the team suggests that the Line OA provide coupons through municipal partnerships with Sisaket business owners to increase tourism (TAT Newsroom, 2018). According to Thai government policy that enhances tourism in secondary cities, tourist

promotion was found to be an important factor affecting tourist decision making in secondary tourist cities, or cities that are not main popular cities (RATNARATON 2020).

#### **4.2 Features of the Line OA:**

The main aspects of smart tourism that we chose to include were attractions, accommodations, restaurants, events and activities, and transportation, based on popular travel websites such as TripAdvisor and Expedia. TripAdvisor is a credible source we have decided to base some of our Line OA functions on, as it is the world's largest travel platform that has recorded to help 463 million travelers per month (TripAdvisor, *Investor Relations*, n.d.). These features are considered to be common for tourism, and will be the main focus of the Line OA for the municipality. On top of these functionalities, we have decided to include uncommon features that help ease tourism in the city, which would differentiate Line OA from the other platforms. This will also give users more reasons to use the Line OA for when traveling through Sisaket rather than TripAdvisor. Table 1 shows a feature comparison chart of travel platforms, comparing WikiVoyage, TripAdvisor and Expedia to the proposed Line OA. The Line OA will integrate the city with smart tourism as it will then create a connection between the municipality and the tourists of Sisaket.

| Feature Comparison Chart of Different Tourism Sites/Applications |   |   |   |                                 |
|--|---|---|---|---------------------------------|
| Features   |  Tripadvisor |  wiki voyage |  Expedia | Sisaket Municipality<br>Line OA |
| Hotels   | ✓   | ✓   | ✓   | ✓                               |
| Events   | ✓   | ✓   | ✓   | ✓                               |
| Transportation   | ✓   | ✓   | ✓   | ✓                               |
| Attractions  | ✓   | ✓   | -   | ✓                               |
| Flights  | ✓   | -   | ✓   | -                               |
| Restaurants  | ✓   | -   | -   | ✓                               |
| Products   | -   | ✓   | -   | -                               |
| Type of Food   | -   | ✓   | -   | -                               |
| Nearby cities  | -   | -   | ✓   | -                               |
| News   | -   | -   | -   | ✓                               |
| Chatbot  | -   | -   | -   | ✓                               |
| Coupons  | -   | -   | -   | ✓                               |
| Emergency Contact  | -   | -   | -   | ✓                               |
| Weather  | -   | -   | -   | ✓                               |

**Table 1:** *This is a feature comparison chart of tourism websites. It shows what is included in each of these websites compared to the proposed Line OA for the municipality.*



**Figure 5:** Example screen of an initial message from the chatbot and the rich menu of six buttons/feature display that is available on the Line OA.

From our research in popular travel platforms, we have identified seven features that would benefit tourists, attractions, accommodations, restaurants, news, events and activities, transportation and a chatbot as seen in Figure 5 above. Under the attraction feature, the contents will include attractions inside of Sisaket city, and attractions outside of Sisaket city, however this may include attractions within the province. These attractions will have location address, location hours of operations, ratings and reviews, and admission cost provided through suggested connections of the Sisaket Municipality website, since the website would have more accurate information because they are the host city. The accommodation feature will list hotels nearby and in the city, and camping sites, along with its address, ratings and reviews, reservations, and contact information using Google Maps and the user’s location. As camping has become popular

amongst tourists who go through Sisaket and limited to a capacity, it will be important that the tourists have different campsite options (Soiphet, S. 2021). The restaurant's features will have contents of locations are Thai food, sweets and desserts, street food, and other cuisines. It will give the users options to choose from, the location address, hours of operations, ratings and reviews, dine in or take out only, and contact information. The news feature will include contents of weather forecast based on the user's current location in Sisaket, COVID-19 information as regulations in Sisaket may change, and daily news that allow users to be updated on promotions or important news within the city. Meanwhile, the team conducted first hand observations touring at Sisaket. The team recognized that weather played a significant role in the experience, to elaborate, as one of the days, the weather was 60.8°F which is considered cold and foggy, so the quality of photo taking was decreased resulting in an inconvenient experience for touring. The Events and Activities feature will have an event calendar that lists out annual events and other events throughout the year, by month. It will give the user information such as event location, time, cost of admission and time of event. This will allow tourists to plan in advance. As seen in Figure 6 the Lamduan and Durian festival is an annual event, where all of the information of the event is listed. Under the transportation feature, there will be bus and train schedules, bus terminal numbers and taxi contact numbers, as seen in Figure 7. Moreover, these features cannot be found on other travel websites, and including it in the Line OA will improve the tourist experience correspondingly.

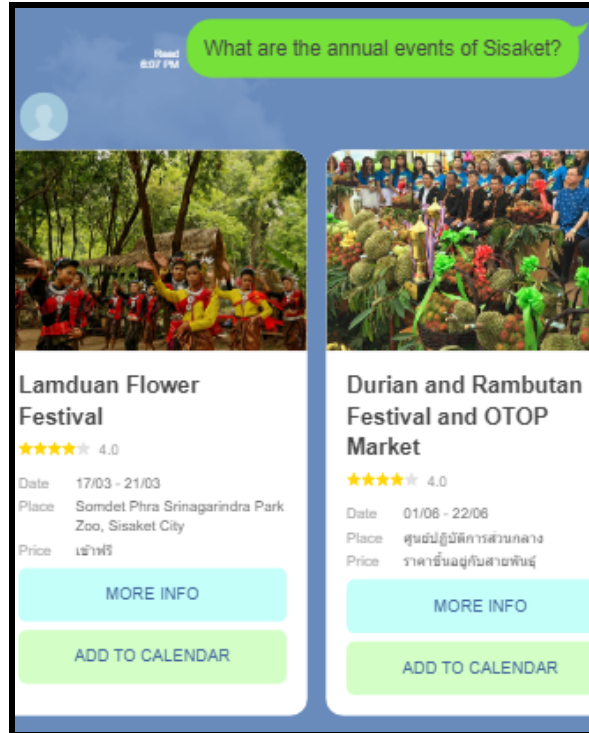


Figure 6: An example of a potential question from a tourist about events in the city of Sisaket

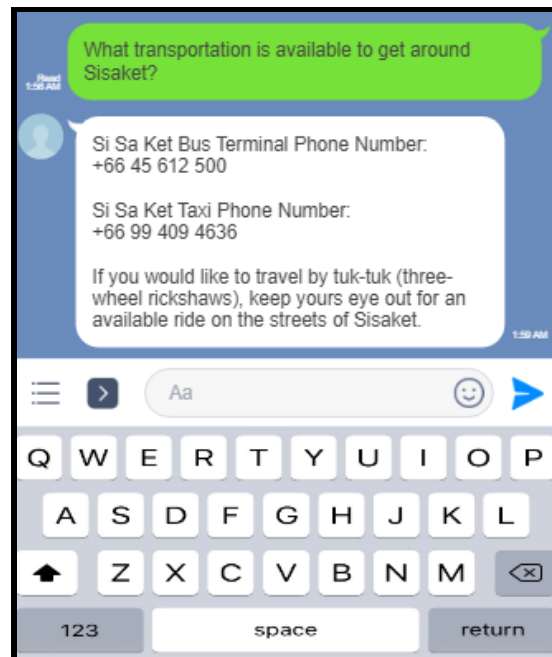


Figure 7: An example of a tourist looking for transportation around the city of Sisaket



Lastly, the chatbot feature, the Line OA should provide information in Thai and English at its initial launch. The municipality's representative believed that having multiple languages available in the Line OA for different tourists would be beneficial, however the research that team had conducted proved otherwise. Of the two percent of tourists who are foreigners outside of Thailand, the top three countries are the United Kingdom (UK), the United States of America (U.S.A.), and Netherlands. English is the main language in the UK and the U.S.A, and is the secondary language in the Netherlands where the English proficiency reaches from 90% to 93% of the Dutch population (Wikipedia, "English in the Netherlands," 2022). With such a heavy abundance of Thai tourists, the secondary language of Thailand is English, it would make the most sense to have these languages as options. We were suggested to include Chinese through the focus groups with small business owners, however, this was decided not to be included as Chinese people were not reported to be a part of the top five of foreign tourists in Sisaket, according to the Division of Tourism and Sports Economy and the Ministry of Tourism in Sports. In addition, the main forms of communication in China are WeChat, WhatsApp, QQ, and WeCom so it is considered unnecessary to include Chinese language into this Line OA as there are no strong record or statistical data about Chinese people using Line platform in daily life (Song, C., n.d.).

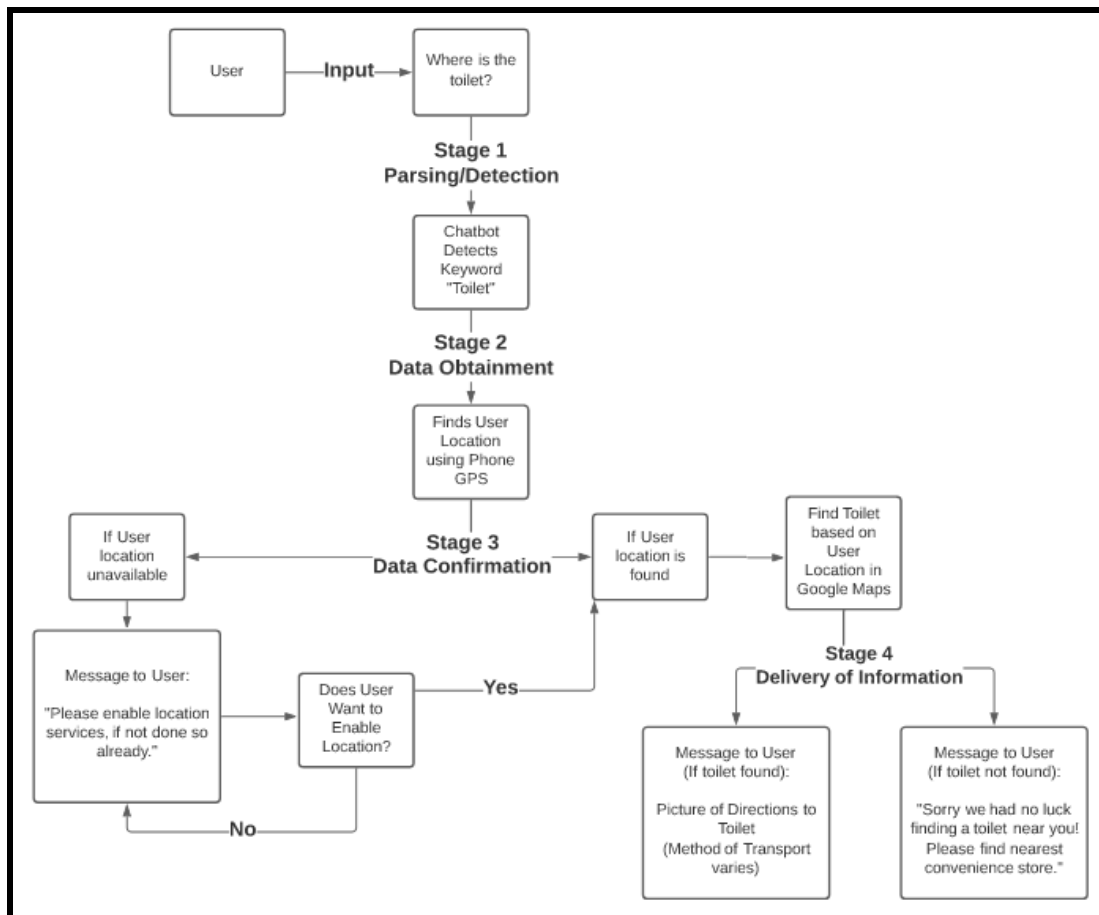
A chatbot can serve as a primary way for the municipality to provide essential information through the Line OA. The Line OA chatbot function is comparable to a Frequently Asked Question (FAQ) where the certain keywords found in the user's questions will be designed to reply with an automated answer. Therefore, we can propose the chatbot functionality as a virtual tour guide experience that users can ask for specific or detailed information, to the municipality. The chatbot would also serve as a way for the municipality to collect data on tourist attractions and accommodations in the city which allows tourists to ask questions as well as enables the municipality to identify areas of concern. For example, if tourists cannot find toilet facilities in a specific location, the municipality may find solutions or help tourists to locate the toilets, as seen in Figure 8. The user is asking the chatbot for the nearest bathroom and using keywords like bathroom, the chatbot replies with the nearest restroom. In figure 9, the flowchart shows how the chatbot is expected to handle keywords, similar to figure 8. The chatbot will look

in a list of keywords that have been stored in a database, and respond to users based on other essential information for obtaining directions. Once the chatbot identifies the keyword “toilet”, the chatbot will then proceed to obtain the user’s location through the mobile device’s GPS services. If the chatbot can’t detect the location of the user, the user will be prompted to turn on their location in the settings to continue. Once the chatbot receives the user’s location, the chatbot will find the nearest toilet to the user and prompt them with directions based on whether there is a toilet available nearby through Google Maps. Another example of the chatbot function is shown in Figure 10. This figure shows the user asking about the mask mandate in Sisaket city, and the keyword identified would be “mask”, and the chatbot replies with the mask mandate and the consequences. Taking advantage of Line OA coupon features, users can find coupons for restaurants, hotels or any future vouchers from partnerships. Seen in Figure 11, the user is asking if there are any coupons available, with the keyword being “coupons”, and the chatbot replies with a barcode for a coupon. Coupons can become an available product provided by potential future partnerships between the municipality and local business owners. The purpose behind the coupon is to promote using the Line OA with potential incentives. Accordingly, the team has used our experiential observations as tourists to present a list of potential question areas that other tourists may have which can be found in the appendix.

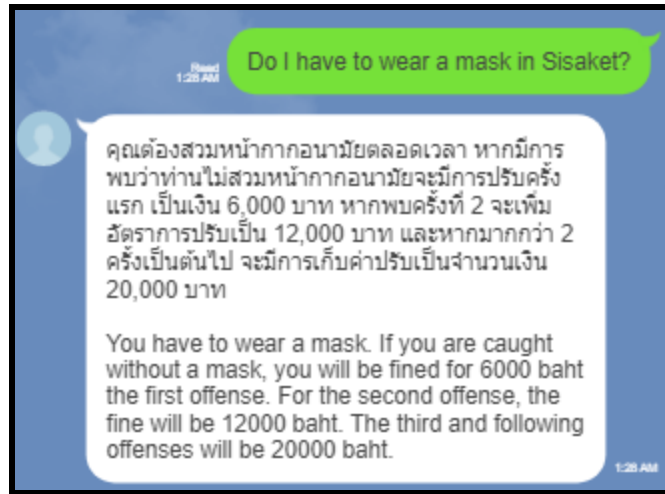
It is also important to note that the LINE chatbot also must be run on a server, meaning that the chatbot must be consistently running on a personal computer or a cloud platform. The definition of a cloud platform will be simplified for the purposes of this project as a paid third party computer where a user can access it through the internet. For security reasons, we recommend using a cloud platform. There are a couple platforms to choose from, mainly Amazon Web Services (AWS) or Heroku. AWS is the cheaper platform because it is less intuitive than Heroku, meaning that extra training is needed as a trade off. Because lack of training was a problem in the past, namely the Sisaket smart governance application, we suggest using Heroku due to its intuitive design for developers.



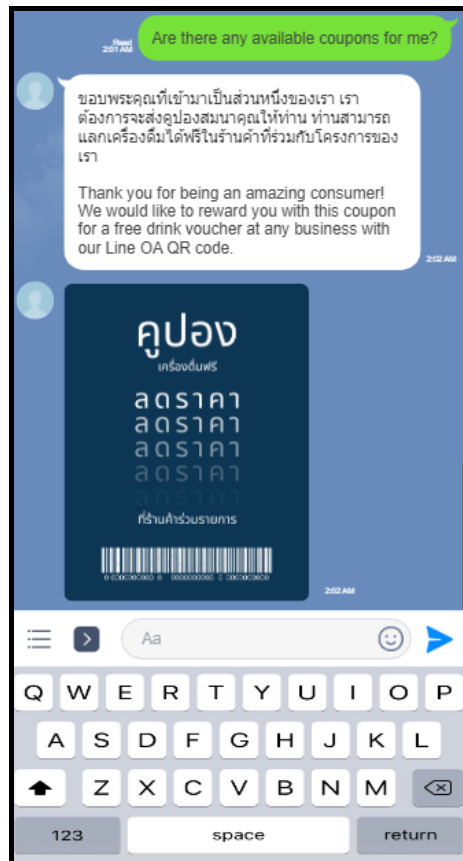
**Figure 8:** An example of a potential question from a tourist about where the closest toilet to their current location



**Figure 9:** Flowchart diagram handling toilet question from User in stages from Figure 8



**Figure 10:** An example of a potential question from a tourist about wearing a mask in the city of *Sisaket*



**Figure 11:** An example of using the chatbot to supply users with coupons for local business

### 4.3 Publicizing the Line OA:

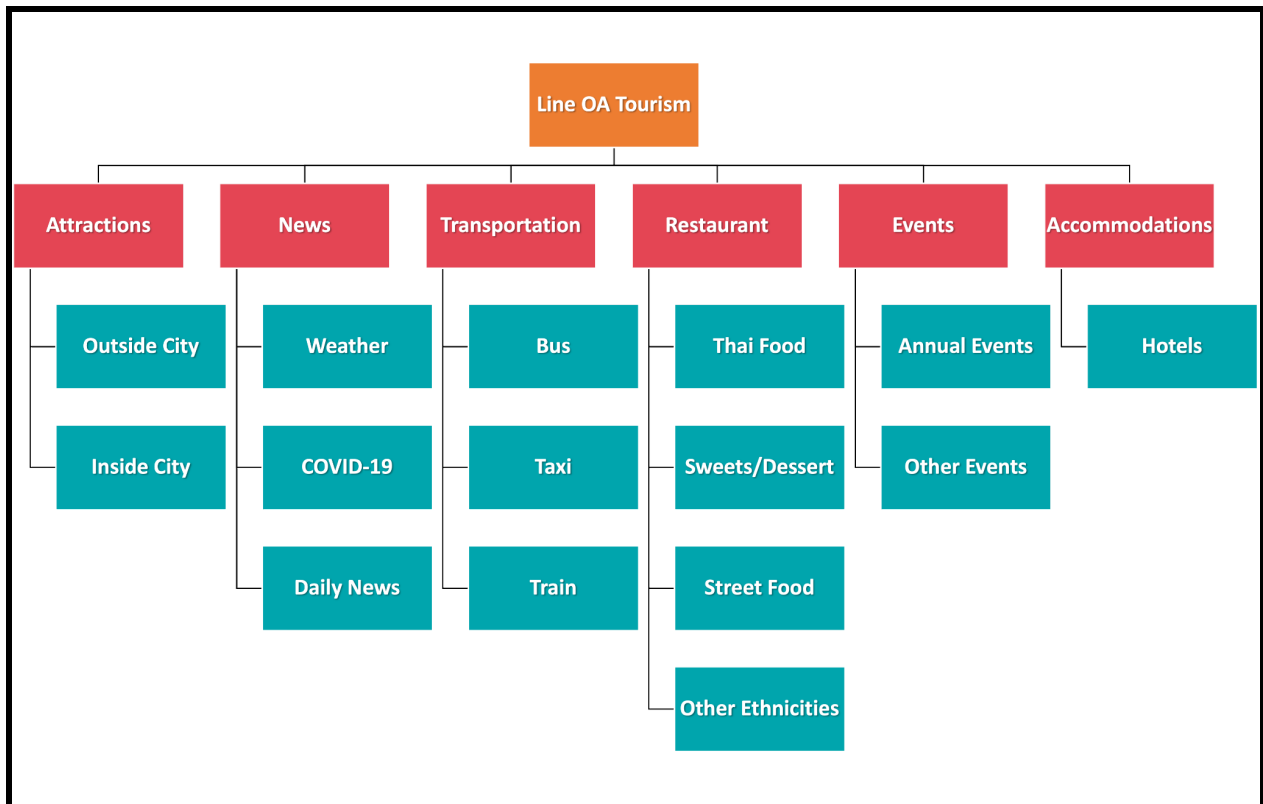
In order to make sure the Line OA is used by tourists, the municipality must publicize the Line OA at popular locations across Sisaket province. This will be done by posting the QR code in specific locations that tourists frequent. From our experiential observation at tourist attractions around the province of Sisaket, we gathered a list of locations where the city could publicize the Line OA for tourists. This list includes visitor centers, currency exchange booths, napkin dispensers at restaurants, front desks of hotels, gas stations, and possibly adding tourist stands at each tourist attraction. These are locations that tourists will consistently visit, therefore making these locations great places to publicize the Line OA. Figure 12 shows an example of how the QR code for the Sisaket Tourism Line OA would be presented.



**Figure 12:** *An example design of a QR code for the municipality's tourism Line OA*

## Recommendations

For our recommendation for the municipality to start developing a smart city, specifically through tourism, we recommend developing a tourism Line OA. As part of this account, there will be a rich menu with six buttons. These buttons will include aspects such as tourist attractions, restaurants, accommodations, events and activities, transportation, and news. Within these aspects, information will be included such that tourists will be able to travel around the city with ease.



**Figure 13:** *This is a breakdown of what kind of information should be included in each of the six aspects of the rich menu that is part of the tourism Line OA for the municipality.*

After receiving the prototype, we recommend that the municipality form a tourist Line OA based on the team's framework. We used existing travel sites as a reference for our tourism LINE OA features, and realized the information found on these sites could be reused by the Line OA. We suggest the municipality update their information to the Line OA to make sure that the

information will be up-to-date based on what the municipality thinks tourists would need most in Sisaket. The benefit of using a municipality run database is the customization of the collected data, and the choice of information to be presented to the tourists. Once the municipality has justified the Line OA, they can submit a report to DEPA to request for funds in the development of an actual Line OA.

After the municipality has launched the Line OA, another important factor to consider is how the municipality will publicize the Line OA to tourists. Based on our team's research, the team suggested that the municipality should find a representative to maintain and update the Line OA consistently. Moreover, the municipality should publicize the Line OA around the province to provide information for tourists and improve their experience in Sisaket. Areas that the team suggest are visitor center, restaurants, gas stations, napkin dispensers in public toilets, and in Sisaket train station. The team also recommends that the municipality has QR codes added in currency exchange booths, tourist stands, and also travel brochures at the airport. Lastly, as an incentive, the team recommends that the municipality partners with local businesses to provide coupons to both increase tourism and strengthen the economy. However, this could be determined as a potential limitation as it is up to the municipality. Budget for a team to maintain the page consistently would be necessary.

### **5.1 For the Potential Developer:**

Our limitations in time and experience does not allow us to have a fully coded or functional Line OA at the moment. However, our prototype is expected to guide and inspire a future development based on our suggested functionalities. The available resources for the Line OA to become fully functional in the future are found on the Line website. As a developer for a Line OA, the Line Developer Console is available for developers to allow for more contributors to work on a future project like the Line OA. For the chatbot, using the Messaging API, which is a free service, will allow for existing definitions and protocols for writing the messages that the chatbot will utilize. When using the Google Maps API, which is a free service provided by Google, the application will be able to identify locations and directions for the user.

## **Conclusion**

We have appreciated the opportunity to work with the municipality of Sisaket. The team has designed and presented to the municipality a prototype of the Line Official Account using the Line Bot Designer. During this process, we collected information from the municipality's representative, focus group, tourism application project manager, and additional case studies to identify areas that are essential to a successful Line OA chatbot and rich menu. We have generated possible answers for the chatbot through prior research concerning interaction with instant messages to strengthen communication between the municipality and tourists for a positive experience for the development of smart tourism. We have focused on prioritizing the rich menu for the Line OA page to address aspects of local tourist attractions, accommodations, restaurants, events and activities, and transportation. This account will help increase Sisaket's smart economy system by providing a convenient channel for tourists and citizens to travel in Sisaket.



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## **Supplementary Materials**

### **Appendix A: Interviewing Municipality Officials and Representatives**

1. What are the expectations the municipality has for the Line OA?
  - a. What does the municipality want from the Line OA?
  - b. What features meet expectations, and what features do not?
2. What kind of information do you intend to include in the Line OA?
3. What kind of data do you want to gather from the Line OA?
  - a. What do you plan to do with the collected data?
4. Do you have a budget for the Line OA?
  - a. Is it enough to sponsor a team to update the Line OA often?
5. What are tourist attractions not on google?
  - a. Is it worth including in the line OA?

### **Appendix B: Interviewing Tourism Project Developer Official, Mr. Nattapol Hirunrueng**

1. What is the main goal when developing the Line OA?
  - a. Who was your target audience? (Thai or International)
2. How possible is it to implement a chat bot to respond to specific keywords?
  - a. How useful would a chatbot be in a tourism environment?
  - b. Are there any specific questions that you wish to greet or inform the user of?
3. What kind of information do you intend to collect?
4. Do you intend to collect personal information on the Line OA?
  - a. If so, what do you intend to do with it?
5. How is the information stored and organized?

## **Appendix C: Interviewing Chamber of Commerce Representative**

1. What are the most popular tourist attractions in Sisaket?
  - a. Why do people typically come to Sisaket?
  - b. How long do tourists usually stay in Sisaket?
2. What problems do tourists usually face?
3. Who are the main types of tourist and how are they categorized?
  - a. What are their reasons to come to Sisaket?
4. How do tourists usually travel around the city?
5. What are the activities that tourists usually do?
6. What kind of city does Sisaket want to be viewed as?
7. How are the tourist attractions advertised?
  - a. Other methods to spread awareness of Line OA?
8. Were there any past advertising strategies?
  - a. If so, why are they not still used?
9. Cost for these advertising strategies?

## **Appendix D: Interviewing Director of Research and Development Institute Sisaket Rajabhat University, Assist. Prof. Prachuab Chanmun**

1. What is the most important historical event that defines Sisaket?
  - a. How should Sisaket be remembered?
  - b. Any attractions in Sisaket that represent this historical event?
  - c. Any cultural traditions unique to Sisaket?
2. What smart city projects were worked on in the past?
  - a. Did these projects fail, if so why?
  - b. What worked?
  - c. Was there a specific aspect focused on?



d. How should Sisaket stand out, if turned into a smart city?

### Appendix E: Sisaket Province

Sisaket province is located in the lower northeastern part of Thailand, in the Mun river valley. The total area of the forest is 1,025 square kilometers, which is about 11.5 percent of the provincial area. Sisaket province has a lowland area in the middle and north of the province, for the south of the province the area will be slope area. Sisaket also contains many ethnic tribes, including Suay, Lao, Khmer, and Yer.



*Figure 14: Sisaket's Flag*

Source: sisaket official website (en.sisaket.go.th)

The Sisaket flag consists of orange and white, divided in half horizontally, has a prang ku emblem with Lamduan flower and 6 leaves support at the bottom. The meaning of stone castle is there are many Khom castles in Sisaket and the castle is a unique thing in the province so it represents the province. One Lamduan flower means Lamduan flower because there are many Lamduan trees in Sisaket and Lamduan is a provincial flower of Sisaket. 6 Lamduan leaves means the first 6 districts in Sisaket. All of the components in the flag represent Sisaket province.

As for Sisaket's history, despite being thinly inhabited, the province appears to have been vital to the Khmer empire by the 12th century, as evidenced by the numerous Khmer ruins located there. According to local legend, it was once called Sri Nakhon Lamduan. It was then

renamed Khukhan after a town founded during the reign of King Boromaratcha III of Ayutthaya in the late-15th century CE. Ethnic Laos began to settle in the province's northern reaches, and the town of Sisaket was founded in 1786, under Khukhan's control. Sisaket was renamed Khukhan in 1904, whereas Huai Nua was given to the previous Khukhan. Rasi Salai Dam is a dam in Rasi Salai, Indonesia. Monthon Udon Thani was founded in 1912 and acquired control of the majority of the region's governments. The province system was abolished in 1933, and the province of Khukhan was handed over to Bangkok. Five years later, the town's and province's names were restored. Since the Khmer era over a thousand years ago, the area around Sisaket has had a strong culture and a wealthy economy.

Furthermore, various ethnic tribes like the Suay, Lao, Khmer, and Yer have lived here. During the Ayutthaya era, Sisaket was established as a town in 1759. The town was relocated to its current position during the reign of King Rama V, or roughly a century ago. The Interior Ministry in 1916 stated that all city names would be converted to provincial names. As a result, the province of Khukhan was a Khukhan province. On November 9, 1916, the governor delegated authority over the city to a provincial governor. A royal order then changed the province of Khukhan in 1938 B.E. is a “Sisaket province” from that point forward until present.

Sisaket is largely agricultural; their main products are rice and tobacco. They also have plenty of fruit such as durian and rambutan, which will be available at the beginning of the rainy season. Moreover, Sisaket also made silk fabric for other provinces to make an income for their province. The province produces a broad range of fruits, including rambutan and durian. These are usually accessible around the start of the rainy season, in May. The majority of the locals are subsistence farmers who earn around 300-400 baht (\$9-12) per day. The Lamduan tree and flower are Sisaket Province's symbol plants and flowers. Sisaket Province is a place where numerous Lamduan trees grow everywhere, and when they blossom, they emit a cool aroma that travels across the province, which is why Sisaket City is also known as “Mueang Si Nakhon Lamduan.”

Our project works to answer Sisaket's underlying wish to become a smart city. Specifically, we have designed a Line OA for the municipality of Sisaket revolving around smart tourism. As part of our background research on ways to promote tourism in Sisaket, we looked into websites such as Wikivoyage, TripAdvisor, and Sisaket's own traveling website. From this we were able to identify common areas of tourism that appeared consistently in each of the websites. Such areas included tourist attractions, hotels, types of food and restaurants, ways to get around the city, and yearly events. This gave us a better understanding of what kind of information that tourists are typically looking for when visiting a new city or place.

The main aspects of smart tourism that we chose to include were tourist attractions, accommodations, restaurants, events and activities, and transportation. These will be the main focuses of the Line OA for the municipality. By doing so, we have created a connection between the municipality and the tourists of Sisaket. Through talking to municipality officials and representatives, focus groups with citizens of Sisaket, as well as representatives from the Chamber of Commerce, the team has created a mock prototype for the municipality's Line OA that helps improve the experiences of those traveling to Sisaket. We have also researched the best ways to promote the Line OA in order to increase awareness for the application as well as the attraction within the city.

#### **Appendix F: Interviewing Municipality Officials and Representatives:**

From the interview with the Municipality Officials and representatives, they expect to be able to connect the people to the government, through this project. In the past when the municipality had created a mobile application, it was not popular because the citizens were not familiar with downloading applications, and it was not advertised effectively. The municipality then came up with an assumption that if this application was moved to a different platform such as Line OA, people would use it more often because many Thai people already use Line. For

Sisaket city, we have chosen to focus on Thai tourists on a smaller scale, to improve tourism for those who travel through Sisaket City.

The Line OA that is aimed for tourists, the municipality wants features that provide information as well as a chat bot. Features such as ratings and reviews for restaurants, hotels and attractions, an event calendar that lists events in each month, all with a maps feature that shows the individuals how to get to their destination. Sisaket City is known to hold a lot of annual sporting events such as marathons and the Sisaket Games. Through hosting these sporting events, the municipality aims to boost the economy in the city by giving athletes coupons for restaurants hoping athletes would return back. Hence hotels and restaurants gladly welcome tourists.

In the past with the previous mobile application, the data was never collected for any use because they didn't see the benefits from it. The municipality intends to collect data from the user as it is important to use it, but they are not sure how to organize the data and how they want to put it to use. Behind more logistics, there is no specified budget currently because it is a new project, however if DEPA approves of this, Line OA for tourism will move forward.

#### **Appendix G: Interviewing Focus Group:**

1. Mr. Kwin Nimkingrat: The owner of Thanomrat Contractor and start-up Beeman
2. Ms. Phetcharat Suriyareungrit: The president of Sisaket Young Entrepreneur Chamber of Commerce and the owner of Chaturachok group
3. Ms. Siriyaporn Saejung: The owner of lilly physical therapy clinic
4. Mr. Sid Mahasaweerachai: The owner of Prompiman Hotel
5. Mr. Wisarut Mahasaweerachai: The owner of Santisuk gold shop
6. Mr. Jomthana Triratwong: Partner of Zunheng Plaza Sisaket, Owner of The Cupper Crown Coffee shop and Partner of Shell gas station
7. Mr. Kittiwat Kiatsuranon: The owner of Sisaket Kitcharenrthai
8. Mr. Bunyakiat Thaveesuksiri: The owner of PTT gas station

From the interview with Ms. Phetcharat Suriyaruengrit, the president of Sisaket Young Entrepreneur Chamber of Commerce and the owner of Chaturachok group, our team found out that the city promotes tourism through online and offline platforms. As for online platforms, the city uses social media such as Facebook and websites to inform tourists on news and upcoming events in Sisaket. For offline platforms, since the Sisaket municipality is not a tourist attraction compared to other cities and provinces, the Chamber of Commerce promotes events and activities through offline platforms such as being a tour guide, uses of local cable tv, and lastly, billboard. Upon asking why tourists do not travel to Sisaket, the city has stated that there could be two possible factors: a lack of tourist attractions and the amount of promotion the city initiates. In addition, the city has recommended the team to use the strengths of Sisaket of being a city with diverse ethnicity, long history with old tribes, and being a house of sport events in Thailand to promote the city. One of the most important events that Sisaket holds is the Durian and Rambutan Festival and OTOP Market. This event makes a lot of money for the city and by promoting this event better, it will help bring more people to the city as well as increase awareness of Sisaket's tourist attractions among other Thai citizens. The festival will bring in 336.1 million Baht in the 10 days that it goes on for (Kom Chat Luek News). This is a big event for the city and can help boost the economy of the city.

Four investors in Sisaket were interviewed on the viewpoints of the Line Official Account: Mr. Kwin Nimkingrat (Thanomrat contractor & Beeman), Ms. Siriyaporn Saejung (Lilly physical therapy clinic), Mr. Sid Mahasaweerachai (Prompiman Hotel), and Mr. Wisarut Mahasaweerachai (Santisuk gold shop). From the interview, our group found out that Line OA is a good option for Sisaket since many believe that Line OA will be more accessible to both the younger generations and the elderly. Moreover, the interviewers believe that other features such as daily news, chat bots, contacts of the municipality, and an easy to understand graphic would best benefit the tourists. Nonetheless, the most important aspect that the team should consider is how the Line OA can be advertised. Suggestions of the QR of LINE OA popping up within a specific location (such as within the Sisaket municipality) or promotional codes were made;

however, all the stakeholders and benefits should be considered before making a suggestion to the municipality.

From the interview with Mr. Jomthana, our team has decided to narrow down the target group of our project to facilitate people who intend to travel in Sisaket instead of Thai tourists. The main focus of the target audience is people who already know about Sisaket. This will be a good starting point for developing Sisaket into a smart city as they have been to Sisaket and know a good enough amount to cause them to revisit the city. Consistent tourists will help the city develop and improve the economic situation. By bringing more money into the city, the municipality can also increase the amount of tourist attraction and bring more tourists to the city. One point that was brought up during the interview was that Sisaket is in between two other large tourist hub cities: Ubon Ratchathani and Surin. This brings up the fact that Sisaket is not the desired destination of tourists in the area. However, if we can promote Sisaket as a tourist city, it can be a desired stop along the trip for tourists in between the two cities and also initiate the development of tourism along with providing utmost facilities for tourists in Sisaket.

#### **Appendix H: Experiential Observation:**

Tourist Attractions:

- Pha Mor E Dang, Khao Phra Viharn National Park
- Wat Phrai Phattana
- Phraya Kupree Viewpoint
- Suksamran Beach

During our experiential observation, the team traveled to four different tourist attractions within the province of Sisaket. These four locations include Khao Phra Viharn National Park, Wat Phrai Phattana, Phraya Kupree Viewpoint, and Suksamran Beach. Our first stop on the first hand experience trip was Khao Phra Viharn National Park. When arriving at the location, we were stopped at the gate and were asked to pay 40 baht per Thai and 400 baht per foreigner. We then proceeded to the top of the mountain within the park where there was a visitor center and

bathroom stationed next to a parking lot. Before walking along the path to the Pha Mor E Dang lookout, there was an area for sitting and enjoying the view. The group then took the trail along the cliff side to a shrine where incense was placed and a overlook with accompanying binoculars that allowed tourists to look at Pha Mor E Dang from afar. Along the trail in some areas was military barbed wire to prevent tourists from entering some areas due to border conflicts with Cambodia. Also along the trail were small vendors selling pictures of castle ruins, monks, as well as Pha Mor E Dang. Upon leaving the national park, the group stopped at some ruins of a prayer location accompanied by a military overlook over the park. Signs were posted describing the history of the ruins in Thai.

The next stop of the first hand experience trip was Wat Phrai Phattana. Before arriving at the temple, the group was required to park by a small market that accompanied the tourist attraction. Within this market were vendors selling clothes, souvenirs, lottery tickets, and food and drink. There were also tables in the middle of the market that allowed tourists to sit and eat the food they ordered. Public bathrooms were also a part of this market. In order to get from the market to the temple, the team had to take a tram for a short distance to the entrance of the temple. When arriving at the temple, the team had to go through a Covid-19 disinfecting spraying machine before proceeding to the actual temple. After the machine were vendors selling food, drinks, and souvenirs on both sides as well as a currency exchange booth. The normal location for taking off shoes for entering the temple had been moved back due to the hot surface for walking before the temple. However, before entering the temple, the team was required to take off hats and shoes. When entering the temple, the team prayed for good luck to the undecayed body of a monk from 2000. The team then proceeded to walk around and pray in a circle and went underneath the body three times as part of the prayer and then exited the temple. Outside of the temple were smaller temples as well as animal stables for yaks and cattle. Upon leaving the temple site, the team walked back to the parking lot and headed to the next location.

The next location was Phraya Kupree Viewpoint. This was a short stop on the trip as this was just an overlook on the side of the street and the viewpoint of Surin from Sisaket's border.

There was a small dirt parking lot and bathroom across from the viewpoint in which the team parked at. As part of the viewpoint, there is a statue of a bull which is believed to be Sisaket's symbolic and spiritual animal and a closed cafe. There was not much to this tourist attraction beside the beautiful view overlooking a large river. After leaving this stop, the team headed to the final destination of the first hand experience, the Suksamran Beach. The beach is commonly used as a pre-wedding photoshoot location because of its beautiful scenario and it is a connected pathway from Wat Phrai Phattana to Phraya Kupree Viewpoint. At this beach, there was a small parking lot next to a cafe selling food and drinks. As part of the beach, there was a large green space accompanied by tables with seating, a dock, and a bathroom. This area is a good space to relax and enjoy the nice environment.

By doing the experiential observation, the team can understand and disseminate Sisaket's attractions as a city with valuable archaeological sites, history, arts and culture, sports and nature. Thus, the team can discuss further about activities in present attractions to promote and encourage tourism. Also from this trip, the team came up with possible areas of questions that tourists may ask a chatbot about for further information about the attractions. These areas include seating, rituals, shops for food, drink, and souvenirs, bathrooms, payment methods, hours open, currency exchange, and whether the site is under construction. These can be used to derive answers for each of the tourist attractions within the city based on the specific areas of questions. This will be important for implementing the chatbot as part of the Line OA. Also along this trip, possible places of advertising the Line OA were identified. Such places include visitor centers, currency exchange booths, napkin dispensers at restaurants, front desks of hotels, gas stations, and possibly adding tourist stands at each tourist attraction. This will help create more awareness of the account as well as cause those who visit Sisaket to find more potential attractions or restaurants to visit.



## **Appendix I: Interviewing with the tourism application project manager and other related department**

After interviews with the tourist application project manager and others, the team received positive feedback on the framework of our project, particularly the chatbot functionality, and how the team will disseminate the features in Line OA for Sisaket's tourism. However, they gave some suggestions about adding the SSK tourism hub into the rich menus of Sisaket main Line OA to provide more connection for tourists. In addition, the team was also suggested to include the calendar's notification for Sisaket's tourists as an option for them to keep track of the events in Sisaket. The weather forecast feature was also suggested for the team to consider as well as coupon and promotion features for restaurants and hotels. Regarding the coupon, the project manager mentioned that they do not have the funds to provide a discount to each retailer, but they would ask citizens to participate in this campaign in exchange for the promotion of their business.

## **Appendix J: LINE Official Account Case Studies**

The potential case study of tourism Line OA in Thailand is from the Tourism Authority of Thailand (TAT). TAT works to improve tourist's experience and expand Thailand's market base. TAT has created a LINE OA called "TAT Contact Center " as a service center in providing information, planning trips, and asking for information. The TAT's LINE OA has E-Brochures of different traveling information from transportations to tourist attractions in different provinces in Thailand. One of their features called "Recommended Tourist Attraction" redirects users to the TAT's blog which includes the recommended attractions in Thailand, as well as guidelines for the entry of Thailand as per the COVID-19 situations. The next feature is SHA Certified Entrepreneurs which shows a list of accommodations, restaurants, transportation, shopping malls, and other recreations that has been approved by Safety and Health Administration (SHA) which is collaborated by the TAT, Ministry of Tourism and Sports, Ministry of Public Health,

Board of Trade of Thailand, and Thai tourism operators. Another important feature in this LINE OA is the access to information to other government department such as the Departmental of National Parks, Wildlife, and Plant Conservation, Department of Marine Coastal Resources, Meteorological department, and Ministry of Public Health for attractions and information such as weather and COVID-19 that may concern the tourists. Other features are menus of TAT's facebook page and call centers which redirect to their facebook page and calls, respectively.

### **Appendix K: Secondary Tourists Cities**

Instead of developing Sisaket into a main source of tourism, it may be smarter to develop Sisaket into a secondary city. In the focus group, we learned that the two areas surrounding Sisaket, Ubon Ratchathani and Surin, are already large tourist attractions. This means that Sisaket must compete against these areas. A secondary tourist city is recommended to revolve around the idea of fitting to a conceptual model, such as a city of sports or a city of wellness (TAT Newsroom). In 2018, TAT launched activities to invite tourists to secondary cities to boost exposure of Thai culture, targeting tech-savvy tourists. This idea aligns with our proposed use of Line OA.

### **Appendix L: Potential Question Areas for Tourists**

- Nearby seating
- Rituals for temples
- Nearby shops
- Bathrooms
- Payment methods
- Hours open
- Food or drink as part of the tourist attraction
- Currency exchange
- Whether or not an attraction is under construction