

# ANTECEDENT FACTORS AND IMAGES OF TELEMEDICINE SERVICES IN BANGKOK AND ITS VICINITY

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## ABSTRACT

Telemedicine plays an important role in helping remote patients have access to treatment and a timely diagnosis from a medical professional. The objectives of this research were: 1) to study the level of image development of telemedicine services in Bangkok and its vicinity; and 2) to study factors affecting the image development of telemedicine services in Bangkok and its vicinity. A questionnaire was used to collect data from 327 telemedicine users in Bangkok and its vicinity. Statistics were used to analyze the data, including frequency, percentage, mean, standard deviation, and multiple regression analysis. The results of the research revealed that 1) The image development of telemedicine services in Bangkok and its vicinity was at a high level. in terms of reliability in providing medical services, in providing highly efficient services with fair prices for customers, and in terms of quality medicines and medical supplies according to laws and international standards. 2) factors The acceptance of technology, work systems, management innovation, and service quality have an influence on the image development of telemedicine services in Bangkok and its vicinity at 64.1 percent.

**Keywords:** Image, telemedicine service, management innovation

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## INTRODUCTION

Nowadays, information technology plays a role in human daily life. Especially telecommunications technology plays an important role in the rapid development of the country. It is connected to various online media, enabling conversations that see the animation and hear the sound at the same time. Helps to communicate more comfortably. In addition to technological advances in telecommunication, It can also promote the development of education, the economy, medicine, and public health. Medical technology has been applied, for example, to care for distant patients through "telemedicine".

Telemedicine plays an important role in helping remote patients have access to treatment and diagnosis from specialists in a timely manner (Somkiat Sangwattanakot, 2020). Information and communication for effective exchange in diagnosis, treatment, and disease prevention, including injury studies research and evaluation, and for the benefit of continuing education of healthcare professionals (World Health Organization, 2012) and telemedicine have two types of applications: (John Craig (2015) 1) storage of Store and forward telemedicine, or asynchronous telemedicine, is a telemedicine system that involves pre-recorded exchanges between two or more people at different times, such as when a doctor or specialist sends details of a medical visit. Treatment or thinking is about the diagnosis and proper handling by email sent to the destination. In this type of system, the physician receiving the information cannot directly take a history or examine the patient's body, and 2) there is a real-time telemedicine interactive of asynchronous interaction between patients and medical professionals, such as talking on the phone or video conferencing. This method allows a specialist doctor located at another location to take a patient's history. Order a physical examination and assess your mental state at a hospital where you can ask for advice. The hospital's doctor is also with the patient to conduct a physical examination according to the advice of a medical professional.

For Thailand during the past situation In particular, the COVID-19 outbreak has seen many severely ill patients in remote or rural locations require immediate medical attention from medical professionals. or specialist doctors who can closely monitor the treatment of patients returning home (Paisan Muneesawang, 2018). Rattana Ratchathani, Rajavithi Hospital, Lerdsin Hospital, etc., in order to be able to diagnose symptoms without the patient having to waste time traveling to see a doctor for many hours and not having to pay for traveling to see a doctor. Or in the case of surgeons using video screens to monitor patients' surgeries without having to travel from one place to another, or connecting the hospital system with various clinics so that the diagnosis results of specialist doctors are consistent. accurately, quickly, precisely, etc. (Department of Mental Health, 2021)

Bangkok and its vicinity are the source of prosperity in medicine. In addition to the past COVID-19 outbreak situation, many medical facilities have applied telemedicine services to solve emergency room service problems. Severely ill and on-site patients cannot make it to the hospital quickly. Or the patient needs immediate treatment from a medical professional. To diagnose symptoms without the patient having to waste time traveling to see a doctor and not having to pay for traveling to see a doctor. But the users are still not as confident in the image of telemedicine services as they should be. Most focus on traveling to the hospital for treatment. In addition, most private hospitals collecting fees for telemedicine services will charge about 500 baht per 15 minutes, and some users still do not have access to technology that provides telemedicine services (Prachachart Turakij, 2021), which, together with the Thai government, has given importance to the health of the Thai population. It has been defined in the country's development strategy. Strengthening and developing human capital potential in the 12th National Economic and Social Development Plan, emphasizing increasing the efficiency of health system management. As well as using information and communication technology to solve the problem of the shortage of specialized doctors. Therefore, telemedicine brings advances in telecommunications to medical services. Therefore, patients do not need to travel

to the hospital. But able to meet with a doctor for examination, treatment, and consultation (Thanaporn Thongjude, 2021).

Given the importance of the above problems, researchers recognize the importance of public health-related issues that require urgent treatment and rely on treatment through telemedicine services. "Telemedicine service" is therefore an alternative for treating patients in emergency situations and patients who are unable to travel to the hospital. But at present, service users still lack confidence in telemedicine services, which in Thailand are not accepted as they should be. Therefore, the researcher is interested in studying "Developing the image of telemedicine services in Bangkok and its vicinity" to know the factors, work system, and acceptance of technology service quality and management innovations that will enhance the image of telemedicine services and make them more efficient in the future.

## LITERATURE REVIEWS

### Concepts and theories about image development of telemedicine

Image is very important to organizations and agencies because it is an important tool for management. This affects the credibility and acceptance of people both inside and outside the organization. With scholars commenting that Reaching an Overall Organizational Assessment Bitner (2018) emphasizes that image is a key factor. Hatch et al., (2016) define the image as the overall impression customers have of an organization based on their feelings and experiences. In addition, Kotler and Armstrong (2016) view the corporate image as a specific factor in the services and products offered by an organization. image of the institute and credibility of the institution In addition to fame Organizational image is another important intangible asset that appears to be a very valuable element that presents increasing importance in organizational management (Maduro et al., 2018). Organizational image is the thoughts and feelings associated with the organization by individuals or groups. It is affected by material and non material elements, communication, and value systems. Bromley (2018) defines organizational image as a collective thought state that shapes organizational communications efforts. to present oneself in public While the academic literature on organizational identity is plentiful, in the past few years, A significant increase in attractive corporate identity in both the academic and business worlds (Awugah et al., 2018) suggests that a good image can attract all customers to use the products and services provided. It can be concluded that the overall image of the organization, its management, products or services, and brand image are driven from within the body and transmitted outside the body as an action. An image is the idea of a person, a group of people, or many things, both living and nonliving. An image is hope between people and people or things and things that must be consistent with existing beliefs and feelings. An image is something that reflects the thoughts of a person or thing outwardly. And the image will increase the value of one thing because that thing or that person is more valuable or popular than ever. It depends on the case story as well.

The main components of a telemedicine system are as follows: John Craing (2015): 1) High-efficiency service or the operation for the benefit of the service users must be adhered to in practice by providing assistance or benefiting the service users as follows in order to provide highly efficient service. The service principles should be as follows: Do it willingly, do it fast, with the right to do it equally, and bring joy. In addition, service means an activity or activities that arise from interactions with others or any device. Which makes the customer satisfied (Patsadaporn Krajangjit, 2020: 16), in line with Suthee Nataworadat (2020: 36), said that service means activities, most of which are intangible but can identify and satisfy the recipient. 2) Credibility of medical services: The provision of services must be reliable, which will affect the image of the organization. When there is more competition in business or image creation, Credibility is used to create an image of an organization that provides services, such as hospitals and government agencies. And various department stores, etc. How to build credibility:

1) Discover the strengths and weaknesses that are important. 2) Be open-minded and accept what is true. 3) Compare what other people think. 4) Build readiness to develop credibility in the image you want to project. Seek the support of those involved in all aspects. Communicate in every way to build credibility. 5) Encourage the natural expression of the desired credibility. Procedure for credible institutions or individuals to support the desired image. Reinforcing the belief that what is true and the desired image are not different. 6) The service price is fair to customers. Telemedicine service providers must have service rates. with a fair price for customers The pricing must be in line with labor costs and expenditures. 7) The medicines and medical supplies used are of legal quality and meet international standards. Distant medicines and medical supplies must be of legal quality and meet international standards in line with the needs of telemedicine users.

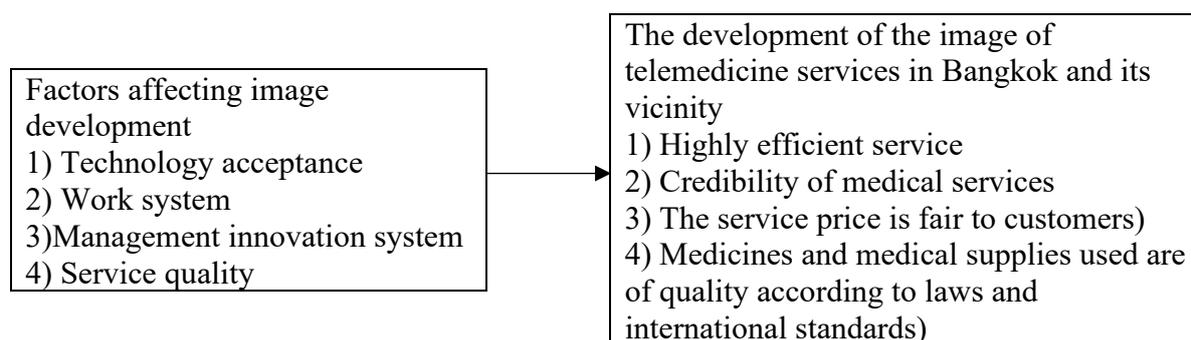
The concept of Darkins, A. William, and Cary, M. Ann (2012). Factors affecting the provision of telemedicine services must be high-efficiency services. reliable Providing services with fair costs and medicines and pharmaceuticals that have quality standards are as follows:

1) Technology acceptance means the use of accepted technology that benefits individuals or results in changes related to behavior, attitudes, and easier use of technology. In addition, the use of technology allows individuals to gain additional experience, knowledge, and skills. 2) Work system means components or factors. Related to the work and is related to the operation to achieve the objectives or goals of the organization. 3) Management innovation means creating new knowledge and ideas. to provide new business results that focus on improving business processes within the organization and business structure to create products and services that are created according to the needs of the market and customers to meet their expectations.

According to the literature review, the following research hypothesis can be formulated:

H1 Technology acceptance factors, work systems, management innovations, and service quality affecting the development of the image of telemedicine services in Bangkok and its vicinity.

From the literature review, the conceptual framework can be drawn as shown in Figure 1.



**Figure 1** Conceptual Framework

## RESEARCH METHODOLOGY

1,798 telemedicine users in Bangkok and its vicinity and a sample of 327 people were obtained from the Yamane sample calculation formula (Taro Yamane, 1973). The belief level was 95%. A stratified sampling method was used.

The research tool was a questionnaire consisting of Part 1: Personal factors of the respondents, namely gender, age, education level, income, and occupation. Part 2: Factors affecting image development The nature of the questionnaire is a Likert Scale with 5 scoring criteria: the highest equals 5 points, the high equals 4 points, the medium equals 4 points, the least equals 2 points and the least equals 1 point. Part 3: The development of the image of telemedicine services in Bangkok and its vicinity The nature of the questionnaire is a Likert Scale with 5

scoring criteria: the highest equals 5 points, the high equals 4 points, the medium equals 4 points, the least equals 2 points and the least equals 1 point.

Before using data collection tools Objective conformity (IOC) and questionnaire validity tests via Cronbach's alpha were performed systematically. The examination found that the IOC was 0.839 and Cronbach's alpha was 0.917, indicating that the research tool was of sufficient quality (Polit & Beck, 2006; Hair et al., 2012) to provide information. This study sent questionnaires to telemedicine service users in Bangkok and its vicinity. Data were analyzed using descriptive statistics, namely frequency, percentage, mean, standard deviation, and multiple regression analysis.

## RESEARCH RESULTS

1) Most of the respondents were 68% female, 72% aged between 41-50 years old, 52% graduated with a bachelor's degree, 58% had an average monthly income of 45,001-50,000 baht, and 45% were business owners.

2) Development of the image of telemedicine services in Bangkok and its vicinity The overall and individual aspects were at a high level. in the reliability of medical services Highly efficient service. The service price is fair to customers, and the medicines and medical supplies used are of quality according to laws and international standards, respectively, as shown in Table 1.

**Table 1** Mean values and standard deviations for the image development of telemedicine services in Bangkok and its vicinity

Aspect	Description	$\bar{X}$	S.D.	Interpretation of results
1.	Highly efficient service	3.91	0.61	Much
2.	Credibility of medical services	4.05	0.47	Much
3.	The service price is fair to customers.	3.89	0.42	Much
4.	Medicines and medical supplies used are of quality according to laws and international standards.	3.72	0.51	Much
<b>Total</b>		<b>3.60</b>	<b>0.42</b>	<b>Much</b>

3) The technology acceptance factor had a  $\beta$  value of 0.317, the work system had a  $\beta$  value of 0.142, management innovation had a  $\beta$  value of 0.132, and service quality had a  $\beta$  value of 0.231, indicating that it had a positive influence on service image development. Telemedicine in Bangkok and its vicinity has statistical significance at the 0.05 level, with Sig. values of 0.005, 0.000, 0.007, and 0.000, which are consistent with the hypothesis set. When analyzing the correlation coefficient (R), it was 0.856, indicating that the group of independent variables had a strong relationship with the dependent variable, and the forecasting coefficient was 0.641, indicating that the group of independent variables affected the image development of telemedicine services in Bangkok and its vicinity by 64.1%.

In order, the equation can be written as follows.

$$Y = 0.947 + 0.132X_1 + 0.317X_2 + 0.231X_4 + 0.142X_3$$

From the regression coefficient analysis, it was found that the factors of technology acceptance, work system, management innovation, and service quality have the ability to jointly forecast the development of the image of telemedicine services in Bangkok and its vicinity by technology acceptance factors had the greatest effect on forecasting (Beta = 0.123), followed by service quality (Beta = 0.121), management innovation (Beta = 0.092) and management innovation (Beta = 0.043), as detailed in Table 2.

**Table 2** Multiple regression analysis of factors influencing image development of telemedicine services in Bangkok and its vicinity

Factors	Unstandardized (b)	SE	Standardized (β)	t	Sig.
(constant value)	1.121	0.106		10.632	0.000
Technology acceptance	0.123	0.023	0.132	3.662*	0.005
Work system	0.043	0.021	0.317	7.865*	0.000
Management innovation system	0.092	0.042	0.142	2.402*	0.007
Service quality	0.121	0.106	0.231	10.632*	0.000
R = 0.856	Adjusted R <sup>2</sup> = 0.641				
R <sup>2</sup> = 0.730	SE = 0.142				

\* Statistical significance at the 0.05 level

## DISCUSSION & CONCLUSION

A study on the development of the image of telemedicine services in Bangkok and its vicinity. The researcher brought up important issues to discuss the results according to the research objectives, as follows:

1) The overall and each aspect of the development of the image of telemedicine services in Bangkok and its vicinity at a high level. In terms of reliability in providing medical services, in providing highly efficient services, with fair prices for customers, and in terms of medicines and medical supplies that are of legal quality and international standards, respectively, that may be due to the situation of the outbreak of COVID-19. In the past, it resulted in people paying more attention to health care, refraining from unnecessary gatherings, and avoiding going to places at risk of infection. When they were sick, they would find a way to treat them. Long-distance medical is one of the options that the hospital is currently using as a tool to treat the illnesses of patients who are far away and whose travel to the hospital is not convenient and requires more acceptance of service. The results of the study are consistent with the research results of Oraphan Kongmalai (2017), who studied the acceptance and image of the use of telemedicine in public health processes in remote areas. A case study of Chiang Rai Crown Prince Hospital. The study found that The image of using telemedicine in public health processes in remote areas. The case study of the Chiang Rai Crown Prince Hospital in Chiang Rai Province was at a high level in all aspects.

2) Technology acceptance factors, work systems, management innovations, and service quality have an influence on the image development of telemedicine services in Bangkok and its vicinity at 64.1 percent. This may be due to the outbreak of COVID-19. In the past, people paid more attention to health care. There is also advancement in technology and innovation to develop medical work systems to provide quality services that satisfy customers. Therefore, there is awareness of the changing technology, being able to talk face-to-face and ask about illnesses from a teleconference by medical professionals who provide services, thus making telemedicine more reliable and accepting. This is in line with the research results of Wiphada Mukda (2020), who studied the assessment of the image of the telemedicine system to support the health care of the elderly in the 21st century in tourism development zones of 12 must-visit cities. The results of the research revealed that technology acceptance factors, work systems, management innovations, and service quality have an influence on the image of the telemedicine system as supporting the health care of the elderly in the 21st century.

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**Data Availability Statement:** The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

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