

# CHOOSING HEALTH INNOVATIONS FOR THE ELDERLY IN BANGKOK

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## ABSTRACT

The objectives of this research are 1) to study the level of selection of health innovations for the elderly in Bangkok. 2) to study factors influencing the selection of health innovations for the elderly in Bangkok. A questionnaire was used to collect data from the elderly in Bangkok. There are 400 licensed people using statistics to analyze data, including frequencies, percentages, averages, and standard deviations. And multiple regression analysis. The results of the research found that 1) the selection of health innovations for the elderly group in Bangkok overall and each aspect is at a high level. In terms of social group activities, home group activities, and activities in the bedridden group, 2) nutritional factors and residential adjustment The use of technology and the use of health care facilities affect the selection of health innovations for the elderly in Bangkok.

**Keywords:** Innovation, Health, Elderly

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## INTRODUCTION

The world population has transitioned to an aging population in developed countries, such as member countries in Europe and North America. Has completely entered into an aging society. Meanwhile, some countries in Asia, such as Japan, have also entered super-aging societies. Thailand is ranked second among the aging societies of ASEAN countries after Singapore (Population Reference Bureau, 2012: 1).

The rapid change in Thailand's population structure over the past 3-4 decades has caused Thailand to become an aging society. Since about 2000-2001, there has been a population aged 60 years, accounting for more than 10 percent of the total population. In addition to the increasing proportion of elderly people, there is another indicator that shows the transition into an aging society, namely the aging index, which shows a comparison of the replacement structure of the elderly population (ages 60 years and over), with the young population (under 15 years old) with the aging index being less than 100 [Aging index = percentage of the ratio of the elderly population (60 years and over) to the young population (under 15 years)] shows that the number of elderly people is less than the number of children. On the other hand, if the index is greater than 100, it means that the elderly population is greater than the child population. At present, the world population is getting older, so the aging index is used to classify societies (Pramote Prasatkul, 2014: 8) as follows: 1) Young society means the index value is lower than 50; 2) Aged society means an index value between 50-119.9; 3) Completed aged society means an index value between 120-199.9 and 4) Super aged society means an index value of 200 and above.

The aging population of developed countries, such as member countries in Europe and North America, has completely entered into an aging society. Meanwhile, some countries in Asia, such as Japan, have also entered super-aging societies. A complete-aged society is South Korea. As for the aged society, Singapore is the number one completely aging society. Next are Thailand and China, respectively. Thailand is ranked second in the aging society group of ASEAN countries after Singapore. The main cause is the rapid increase in the proportion of the elderly population. This is due to two important factors (Information and Communication Technology Center, 2014: 2-3) which are

1) Reduction in fertility or fewer births. The total fertility rate data shows that the average number of children a woman has throughout her reproductive years has decreased progressively from 4.9 children per woman in 1974 to only about 1.6 children per woman in 1974. 2013 and approximately 1.3 people remaining in 2033.

2) Reducing mortality makes Thai people's lives longer. This can be seen from the average life expectancy at birth for Thai people 50 years ago. For males, approximately 55 years, and for females, approximately 62 years. But in 2014, the average life expectancy increased. The age for males is approximately 72 years, females are approximately 79 years, and in the next ten years, the average life expectancy is expected. For males, approximately 76 years, and for females, approximately 83 years.

Such changes have resulted in a rapid decrease in the childhood population, leading to an increase in the proportion of the elderly population, which is likely to continue to increase. From the population projection data for Thailand from 2015-2030, it can be seen that the overall picture of Thailand is in this situation. "aged society" and in the next 10 years will begin to enter a completely aged society (completed aged society). Thairath Online (2022) said that according to the forecast for the year 2022, the population of people aged 60 years and over in Thailand will increase to 20 percent of the country's population. It means 1 in 5 of the population is elderly. This is in line with the criteria set by the World Health Organization (WHO) and the United Nations to define a society with more than 20 percent of the elderly as a "completely elderly society." Currently, there are approximately 11.8 million elderly people in Thailand from a population of over 66 Million people, or 17.9 percent. The result of

Thailand's entering an aging society comes from demographic changes in birth rates, or decreased fertility. Mortality among children and working people has decreased due to improvements in infrastructure, nutrition, education, the economy, and medical advances. It gives the population a higher average life expectancy. The increasing aging of the population is therefore at odds with the declining birth rate, which is a worldwide phenomenon. It is an important turning point that has widespread impacts on economic and social development. Many countries have prepared and implemented various measures to fully accommodate the situation of an aging society. (Thairath Online, 2022)

As the proportion of elderly people continues to increase, it is considered that it helps support expansion in the market for products and services for the elderly. Currently, money circulating in the market for goods and services for the elderly should be worth at least 900 billion baht per year, or approximately one-third of the value of the entire country's GDP. Although the market value of products and services for the elderly tends to continue to expand, it is full of challenges. This is because the majority of Thai elderly, more than 95 percent of the total elderly population, do not have very high incomes. (average less than 300,000 baht per year) and rely on children and grandchildren as the main source of income. Targeting elderly people with low incomes means products and services also need to be affordable. But if you choose to target the elderly with a middle income or higher, you will face intense competition. Entrepreneurs need to focus on the issues of value for money, difference, and quality in order to meet individual needs. Most importantly, channels to reach target groups must be designed to be easily accessible and convenient for users to use elderly (Kasikorn Research Center, 2017: 2)

Thai society has completely stepped into an aging society. This will surely create an incentive to develop various facilities in response to usage and changing lifestyles, which correspond to higher purchasing power. Compared to childhood or adolescence, these facilities must rely on the ability of technology and communications to respond to everyday applications such as surveillance. This is because the future living style will be a smaller family style. And older people are more likely to live alone. architectural design Products and services that help support the elderly Therefore, it is even more necessary. Although it is not a new product on the market, it will be something that is more in demand. It is more relevant to health care. (Atthaphon Sathitkanithkul, 2015)

Elderly consumers are a market with high potential. There is demand for products and services covering many groups. And has a tendency to continue growing. From the analysis of the increase in the number of new business registrations in the elderly care business over the past 2-3 years, in 2019 it expanded by 48.6 percent. In 2020, although Facing the COVID-19 situation. The number of additional registrations continues to expand at 3.5 percent, and in 2021 (January-March) it will expand by 79.3 percent. The main factor that the elderly group wants is Giving importance to health care improving the living environment appropriately and paying attention to nutrition. And there is more interest in using technology. Therefore, products and services that meet their needs must be special and different. (Office of Trade Policy and Strategy Revenue Department, 2022: 1) Quality of life will be related to health for the elderly. The Office of the National Economic and Social Development Board (2016) defines quality of life as living human life at an appropriate level according to basic needs in a society over a period of time. The elements of proper basicity at least there must be enough food. Have clothes to live in. Have good physical and mental health. There is safety in life and property. Including receiving basic services that are necessary both economically and socially in order to make a living. Or live in society happily, and UNESCO (1981) has defined quality of life as meaning living in an environment that is happy and complete both physically and mentally. They are able to adapt to the environment and society in which they live. Whether it be accommodations, food, or treatment centers, when the elderly are ill, they can be treated

well. At the same time, they can face various problems appropriately. Including being able to use personal potential creatively. Develop yourself and society to live together in peace. As for the quality of life of the elderly, it is related to Maslow's hierarchy of needs theory, divided into 5 levels: physical needs safety needs love, belonging, being respected, and the need for success in life. The physical and safety needs are essential for the quality of life of the elderly. Elderly people and health problems that need to be prepared to deal with include the first group of diseases and diseases that occur with age that come from living in the past or genetically inherited disease. This is a group of common diseases such as diabetes, high blood pressure, heart disease, and kidney disease. The older you get, the more likely you are to have them. The second group of diseases are those that are inherent to the aging process of Thai society. Or from the decline of the body that occurs in the eyes, ears, nose, throat, joints, and nervous system. Symptoms that are problems in most elderly people that affect their mental and physical health include: 1) vision problems; 2) hearing problems; 3) balance and falling problems; and 4) incontinence of bowel movements. The elderly should consult a doctor for a health check. Find the cause and how to fix it. Find ways to prevent or prolong the deterioration of various organs. Health care among the elderly is very necessary and will require the use of various innovations to help as well. It affects the quality of life, physical health, and mental health when physical health is good. Mental health will be good as well. Make the elderly happy, have a long life, and continue to be a shade tree. (Vichaiyut Hospital, 2022)

Preparedness and prevention of danger among elderly people who are at risk. The elderly are one of the at-risk groups that must be closely monitored. Both physical health and accidents can easily occur, which can have serious consequences for the elderly. Caregivers or the elderly themselves should check their physical condition and the innovations in various equipment used for convenience. For example, check your body and the condition of your home, car, or various equipment every time. 5 factors are dangerous to the elderly during the rainy season, such as: 1) You should avoid getting wet in the rain and drizzle. This causes slips and falls, which is the number one danger for the elderly. 2) Be careful of accidents inside and outside the home. 3) Basic health and hygiene. 4) Environment within the home. 5) Danger from poisonous animals. (Thairath Online, 2022)

The National Science and Technology Development Agency (NSTDA, 2021) has presented research results on innovation for the elderly. Opportunities and challenges for dealing with an aging society. Not only economically, socially, etc., we have seen the problem and have continued research and development to create innovations that will meet the needs of the elderly in the future without interruption.

Dr. Suwannachai Wattanayyingcharoenchai the Director-General of the Department of Health gave an interview and revealed that during the new outbreak of COVID-19, the elderly are a group at high risk of infection. There is a risk of death as well. In Thailand, the elderly are divided into 3 groups: 1) The socially attached group has 96 percent; 2) the homebound group has 3 percent; and 3) the bedridden group has 1 percent. All three groups of elderly people need to use innovations in various fields. To be safe, To take care of your health appropriately, it's different. Ready to emphasize that if you go out, you must wear a mask. Keep your distance and wash your hands often. By doing it strictly If it is a group stuck at home and a group stuck in bed, close caregivers must take strict care according to public health standards and adding in the matter of the environment within the home (Department of Health, 2022). Information from the Department of Provincial Administration Revealed that the elderly over 100 years old in Thailand (including foreigners) are aged from 100-120 years old. As of the end of June 2023, there were a total of 37,172 people. Ranked 1: "Bangkok Province" elderly 100-120 years old, totaling 6,701 people. , 2nd place: "Nonthaburi Province" elderly people 100-120 years old, total of 1,460 people, 3rd place: "Chiang Mai Province" elderly people 100-120 years old, total of 1,161 people, 4th place: "Chonburi Province" elderly people 100 years old-120 years old,

total of 1,138 people (Thai people, 944 people, 5th place: "Narathiwat Province" elderly 100-120 years old, total of 1,125 people, 6th place: "Nakhon Si Thammarat Province" elderly 100-120 years old, total of 1,047 people, 7th place: "Songkhla Province" elderly 100-120 years old, total of 1,039 people, 8th place: "Yala Province" elderly 100-120 years old, total of 1,001 people, 9th place: "Nakhon Ratchasima Province" 100 elderly people-120 years old, total of 995 people, 10th place: "Pattani Province" elderly 100-120 years old, total of 981 people.

Therefore, products and services in Bangkok that meet the needs of the elderly must be special and different and have a relationship with health at an appropriate level according to the basic needs of society at a particular time. Including being able to use personal potential creatively. Develop yourself and society to live together in peace. From the foregoing, the researcher is of the opinion that innovation in equipment for the elderly is a growing trend in the product market. Elderly people will choose to use health innovations to meet the needs of the elderly even more, providing more convenience than before for the benefit of the elderly themselves as well as benefiting entrepreneurs in developing product formats and new services to support the elderly who are about to step into a completely aging society. Therefore, the researcher is interested in doing this research. Choosing health innovations for the elderly in Bangkok in order to present research results that benefit the country's society.

## **LITERATURE REVIEWS**

### **Concepts and theories regarding the selection of innovations for health**

Rogers (1983: 11) stated that innovation is a new idea, action, or object that is perceived as new by an individual or other unit of acceptance in society. Therefore, innovation may mean something new that no one has ever done before. or new things that have been done in the past but have been revived, or new things that have been developed from existing old things, consistent with Peterson's (1997: 20) saying that innovation refers to complex things that can be used in many ways, consisting of new ideas. New theories and devices for Morgan (1994: 35) defined innovation as bringing new methods into practice after being tested or developed in stages, starting with invention. Development may take the form of a pilot project and then be put into practice. Which is different from the old practices that were practiced before. Moreover, Porter (1998: 8) stated that innovation is an important thing that gives a company the ability to compete and looked at innovation in a broad sense. It combines technology and new ways of doing things.

Nowadays, innovation is important to both the public and private sectors. Including many groups of academics who place more emphasis on innovation. There are various definitions of innovation, as mentioned above. In addition, Audretsch and Link (2012: 1-17) stated in support that innovation is an important characteristic of entrepreneurial behavior. (entrepreneurial behavior) and Jay and Leonard (2001: 51-70) also suggest that entrepreneurs need to have 5 innovation activities: 1) introducing new products and products; 2) introducing new methods of production; 3) opening new markets; 4) opening new sources of raw materials; and 5) restructuring the industrial organization. This is consistent with Kanungo (1999: 55), who stated that innovation is considered an important tool of being an entrepreneur for creating a competitive advantage Market opportunity and business success comes from entrepreneurs using change as an opportunity to make a difference in their business. Until it is widely understood that entrepreneurship and innovation are interrelated. However, innovation can only occur when there is a combination of entrepreneurial conditions and knowledge. To create new ideas that affect innovation and the concept of Gurteen (1998: 5-13), who gave the view that entrepreneurs who have knowledge and are able to access knowledge Being able to manage knowledge effectively is considered an important factor that causes innovation.

As Thailand has completely entered into an aging society, in addition to being a matter of adjustment to deal with the trend of labor shortages in the future, it is also a matter of

adjustment. There are still parts that may provide new opportunities and challenges because the elderly have basic needs in various areas that are different from those of other ages. The basic needs of the elderly are an important factor that entrepreneurs can develop. Solve product problems and innovations to meet the various needs of the elderly. Whether it is the basic needs that the elderly need, such as health security and financial stability, Independence and self-reliance new experiences in life: continuing to work after retirement, the desire to be an entrepreneur, etc.

The above-mentioned needs of the elderly. It is something that should be supported and helped. Due to the condition of Thai society, taking care of the elderly in the family is something that has been practiced for a long time. Changes in both social conditions and especially the changing economic conditions have an impact on the care of the elderly in the family, both in terms of the elderly themselves. Family members and those who act as caregivers for the elderly, however, must receive appropriate care. To effectively care for the elderly, one must know the basic needs of the elderly, both physically, mentally, and socially, which are different from those of other ages. It is an important factor that entrepreneurs can use to develop and solve problems, products, and innovations to meet the various needs of the elderly, such as health security. financial stability Independence and self-reliance New experiences in life, such as continuing to work after retirement or the desire to be an entrepreneur, etc., and ideas that may lead to the development of various types of products Including new services that will respond to the lives of today's elderly.

Thailand has entered “elderly society” (age society) since B.E. 2005; 1 in 10 of the Thai population is aged 60 years and over. In 2015, there were 11 million elderly people, accounting for 16 percent of the entire country's population and predicts that Thailand will be a “complete aged society” in 2021, reaching 20 percent, meaning the elderly population will reach 1 in 5 and will be a “super aged society” in 2021. 2031, with the elderly accounting for 28 percent of the entire country's population. The situation in Thailand is that it is an aging society. The elderly can be divided into 3 groups: (Department of Elderly Affairs, 2021). The group of elderly people who are socially bound means elderly people who can help themselves well. Live in society freely. Able to perform basic and continuous daily activities. Be in good general health; there is no chronic disease. It is only those who are at risk of developing the disease. or are people who have 1-2 chronic diseases that are still under control able to help others, society, and the community and often participate in social activities. The homebound elderly group (homebound) refers to elderly people who are able to help themselves or only need some help from others. There are limitations to living life in society and are a group of elderly people with chronic diseases that cannot be controlled. There are complications in terms of physical or mental loss. Until it affects cognition, decision making, and performing basic daily activities. The bed bound elderly group refers to elderly people who are unable to help themselves in basic daily activities. I need help from others to move. Daily practice there are many congenital diseases that cannot be controlled. I have had a chronic illness for a long time and have complications from an existing disease. It is a group that is sick and unable to help themselves, disabled or not.

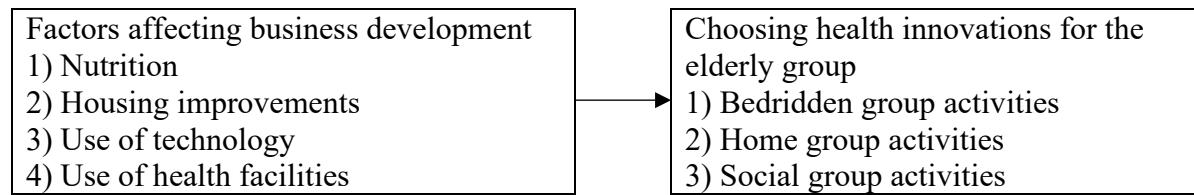
Therefore, it can be concluded that choosing health innovations for the elderly and using healthcare facilities means creating health products or services for the elderly. To have new or different properties in terms of appearance, presentation, or production formula So that new products or services can create new benefits that are satisfactory and respond to the needs and potential of each group of elderly people, including the bedridden group, the housebound group, and the socially attached group which can be explained as follows:

Factors affecting the selection of health innovations are as follows (Anderson, Fornell & Lehmann, 2014): 1) Nutrition refers to food that is produced specifically for the elderly to eat. To have a strong body and repair worn out parts and must respond to the needs of the elderly

by choosing to consume a variety of foods, including home-cooked food, ready-made food, and processed food. 2) Housing improvement means designing housing so that the elderly can stay in the same place for a longer period of time. By creating an environment that is conducive and suitable for the lives of the elderly. There are comfortable amenities. And reduce the risk of accidents. By giving importance to the areas that the elderly use most often, consisting of the bedroom, part of the bathroom, and the kitchen area. 3) The use of technology refers to the use of applications via mobile phones, tablets, the internet, or social media by the elderly. To be a tool to help access information Suggestions for living life or running a business in line with the current way of life include social media. Online trading and facilitation, and 4) the use of health care facilities, meaning the business of caring for the elderly who do not need to be under the supervision of a doctor on a regular basis. It covers accommodation services, food services, and basic health care services. And transportation services to nearby hospitals for the elderly to receive treatment. Businesses that respond to the aforementioned service characteristics include service centers for the elderly, consisting of general care centers (nursing homes), home health care (home care), and end-of-life care centers (hospice care).

From the literature review, the following research hypotheses can be formulated.

H1 Nutrition Factors: housing improvements, use of technology, and the use of health service facilities affect the selection of health innovations for the elderly in Bangkok. From the literature review, the conceptual framework can be drawn as shown in Figure 1.



**Figure 1** Conceptual Framework

## RESEARCH METHODOLOGY

The population in this study includes: elderly people in Bangkok. The total number was 190,691 people (Department of Elderly Affairs, 2022), and a sample size of 400 was obtained from Yamane's sample calculation formula (Taro Yamane, 1973). The belief value at the 95 percent level used the random sampling method. Stratified sampling. The research tool is a questionnaire consisting of Part 1: personal factors of the respondents, including gender, status, number of children, and educational level. Average monthly income and residence. The nature of the questionnaire is multiple-choice. Part 2: Factors affecting the choice of innovation. The nature of the questionnaire is a Likert scale with 5 levels of scoring criteria, including the highest equal to 5 points, the highest equal to 4 points, the moderate equal to 4 points, the slightest equal to 2 points, and the least equal to 1 point. Part 3: Choosing health innovations for the elderly in Bangkok. The nature of the questionnaire is a Likert scale with 5 levels of scoring criteria, including the highest equal to 5 points, the highest equal to 4 points, the moderate equal to 4 points, the slightest equal to 2 points, and the least equal to 1 point. Before using the tool to collect data. The objective consistency (IOC) test and reliability test of the questionnaire through Cronbach's alpha were systematically carried out. From the examination, it was found that the IOC was equal to 0.913 and the Cronbach's alpha was equal to 0.925, indicating that the research tools were of sufficient quality (Polit & Beck, 2006; Hair et al., 2012) to get information. This study sent questionnaires to elderly people in Bangkok licensed. In data analysis, descriptive statistics were used, including frequency, percentage, mean, and standard deviation and multiple regression analysis

## RESEARCH RESULTS

1) Most of the respondents were female 57.33%, marital status 83%, 86% had 1-2 children, 52% graduated from high school 77.67% had average monthly income from 10,000-30,000 baht. And live with family/relatives 75.67%

2) The selection of health innovations for the elderly group is overall at a high level of importance. When considering each aspect, it was found that the activities of the social group had the highest average, followed by home group activities and bedridden group activities, respectively, as shown in Table 1

**Table 1** Mean and standard deviation of health innovation selection for the elderly group.

Choosing health innovations for the elderly group	$\bar{X}$	S.D.	Significant Level	Order
1) Bedridden group activities	4.14	0.26	Much	3
2) Home group activities	4.21	0.27	Very much	2
3) Social group activities	4.24	0.26	Very much	1
Total	4.20	0.21	Much	

3) Nutrition factors have a  $\beta$  value of 0.106, home improvement has a  $\beta$  value of 0.251, technology use has a  $\beta$  value of 0.185, and health service use has a  $\beta$  value of 0.180, which indicates that it has a positive influence on the development of the anti-aging business. According to international standards of entrepreneurs in Bangkok with statistical significance is at the 0.05 level, with Sig. values equal to 0.038, 0.000, 0.004, and 0.007, which are consistent with the set assumptions. When analyzing the correlation coefficient (R), the value was equal to 0.673, which indicates that the group of independent variables is highly related to the dependent variable. And the prediction coefficient is equal to 0.433, which indicates that the group of independent variables affects the development of anti-aging businesses according to international standards of entrepreneurs in Bangkok by 43.3 percent.

In order, the equation can be written as follows.

$$Y = 0.947 + 0.251X_2 + 0.185X_3 + 0.180X_4 + 0.106X_1$$

From the analysis of the regression coefficient values, it was found that the factors: are nutrition, housing improvement, use of technology, and use of health care facilities. There is a common ability to predict the choice of health innovations for the elderly in Bangkok, with nutrition factors having the greatest effect on the prediction (Beta = 0.175), followed by housing improvements (Beta = 0.158). Use of technology (Beta = 0.129) and quality of health service use (Beta = 0.124), with details as shown in Table 2

**Table 2** Multiple regression analysis of factors influencing the selection of health innovations for the elderly in Bangkok.

Factors	Unstandardized (b)	SE	Standardized ( $\beta$ )	t	Sig.
(Fixed value)	0.947	0.256		3.707	0.000
Nutrition	0.175	0.039	0.106	2.303*	0.038
Housing improvements	0.158	0.038	0.251	4.810*	0.000
Use of technology	0.129	0.044	0.185	2.919*	0.004
Use of health facilities	0.124	0.046	0.180	2.712*	0.007
R = 0.673			Adjusted R <sup>2</sup> = 0.433		
R <sup>2</sup> = 0.453			SE = 0.284		

\* Statistical significance at the 0.05 level

## DISCUSSION & CONCLUSION

A study of the selection of health innovations for the elderly in Bangkok. The researcher has brought up important points to discuss the results according to the research objectives, as follows:

- 1) Choosing health innovations for the elderly in Bangkok Overall, each aspect is at a high level. In terms of social group activities, homegroup activities, and activities in the bedridden group, this is because the elderly are stimulated by nutritional factors. Housing improvements, the use of technology, and health service facilities led to the selection of health innovations for the elderly in Bangkok. The results of the study are consistent with the research results of Thipawan Suwanrak (2017), studying health food innovations for the elderly. The research results found that healthy food innovation for the elderly is at a high level.
- 2) Nutritional factors and housing improvements the use of technology and the use of healthcare facilities affect the selection of health innovations for the elderly in Bangkok. This is because the elderly receive nutrition, including home-cooked food. Prepared food and processed food Home improvement in the bedroom area, bathroom, and kitchen the use of technology includes the use of social media and online trading. The use of equipment for convenience and the use of health care facilities, including general care facilities. Home health care and final care facilities As a result, the elderly continue to choose health innovations in Bangkok. The results of the study are consistent with the research results of Rapeepan Khamhom, Woralak Charoensiri, and Lek Sombat (2019), who conducted research on "Developing innovations for the elderly and options for reducing inequality among the Thai elderly. The research results found that nutrition factors contributed to housing improvements. The use of technology and the use of healthcare facilities affects the development of innovations for the elderly and options for reducing inequality among the Thai elderly.

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