

Development of a Management Model for Health Recreational Centers for an Aging Society in the Digital Era

PARICHAT THANAKORNJIRACHOD, PAWINEE BOONYASOPON,
JUTHARAT PINTHAPATAYA, TERAUVUTI BOONYASOPON
Industrial Business and Human Resource Development,
King Mongkut's University of Technology North Bangkok,
1518 Pracharat 1 Road, Wongsawang, Bang Sue, Bangkok 10800,
THAILAND

Abstract: - This study was carried out to create a management model for health recreational centers for older adults in Thailand; the country now has a super-aged society, with the elderly having reached 20% of the population in 2024. The researchers tested the model using three methods: interviews with 7 experts, a survey of 400 people, and a focus group discussion with 15 specialists. Exploratory factor analysis was used to analyze the data, with Kaiser-Meyer-Olkin (KMO) values in the range of 0.80–0.90 and statistically significant Bartlett's Test results ($p < 0.05$), which showed that the data were suitable for analysis. The result has two main parts: Business Management, with 4 parts, and Organizational Management, with 3 parts; these 7 main components, have 18 sub-components, and 48 minor components. The model is based on two ideas well-known in business, the 7Ps marketing mix and the McKinsey 7-S framework. The 15 specialists rated the model as highly appropriate, giving it a mean appropriateness score of 4.95 using a five-point Likert scale, which is well above the minimum pass score of 3.50. The model will serve as a working guide for center operators looking to improve digital services for older adults.

Key-Words: - management model, health recreational center, older adults, digital technology, aging society, super-aged society, McKinsey 7-S framework.

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1 Introduction

Thailand is currently undergoing a rapid demographic transition toward an aging society. According to the National Statistical Office's Survey of the Older Population in Thailand (2024), the country has 14.03 million elderly people aged 60 years and above, representing 20.05% of the total population [1]. This figure confirms that Thailand has officially entered the status of a super-aged society. Projections by the National Economic and Social Development Council indicate that by 2030, the elderly population will rise to 26.9% of the total population. The proportion of the elderly population in Thailand and its projected trend are illustrated in Figure 1.

This change in the population's age has a real impact on the public health system, the social welfare system, and the demand for health and quality-of-life services for older adults. The needs of today's elderly population are different from those of previous generations; they require not only physical healthcare but also recreational activities that promote mental well-being, opportunities to connect with others, and help with modern technology.

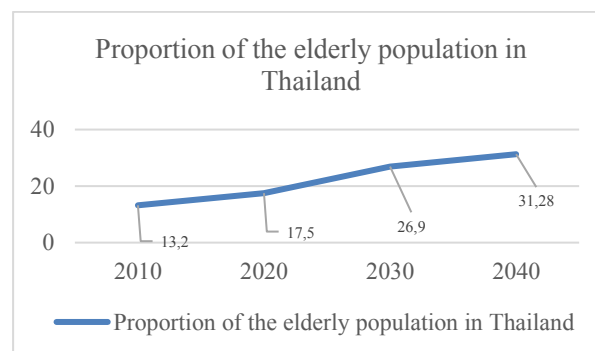


Fig. 1: Proportion of the elderly population in Thailand

Source: created by the authors

Health and wellness recreational centers for older adults, therefore, have an important role in addressing these varied needs. Nevertheless, there are problems in the management of such centers; they include updates to new technology, the design of services suitable for a diverse elderly population, efficient management of resources, and long-term business sustainability.

There have been many studies researching care for the elderly and the management of senior centers; however, we have not found an existing model that covers both the business side and the day-to-day organization of health-focused recreational centers, particularly when digital technology is used for their services. Prior research on Thai settings examined the role of local authorities in managing care for the elderly in their communities, in which there were three keys to success: establishing a strong link to the community, managing the budget, and training the workforce [2]. Similarly, a study of care centers in Bangkok found that staff management, good marketing, and financial honesty resulted in user satisfaction [3]. International evidence from comparably aging societies further supports these findings. In Japan, which became a super-aged society in 2007 and is currently the world's most aged nation, it has been shown that digital care for the elderly needs to be mixed with recreational programming. However, existing models mostly focus on daily routines or clinical care. They do not address financial sustainability or business goals at the same time [4]. In South Korea, studies have noted that management focuses primarily on the quality of health care or finance and ignores training for both workers and the elderly in the use of recent digital technology; this means that workers are unable to use modern digital tools to care for their patients [5]. Singapore's Ministry of Health has recognized that health, social, and digital matters must be tackled together; research has not yet provided enough guidance on how it is to be done. These examples from around the world show that Thailand is not the only country with an outdated management system. There are many countries trying to update how they run their care centers for the elderly. The existing models identified in previous studies, including those relating to Thailand, tend to treat digital technology as an extra rather than a core part of management. None of the identified studies provides a framework to combine the business services, organization, digital change, and specific care philosophy required for older adult populations.

For this reason, we aim to make a management model that brings together business administration and organizational management for actual center operators. The need for such a model is clear: centers, whether government-run, privately-run, or non-profit, have different budgets, but all share a common challenge to keep operating while responding to the growing and changing demands of older adults who are increasingly expected to use digital services. The three objectives of this research are: first, to identify the key components needed for a

health recreational center serving an aging society in the digital era; secondly, to develop such a model; and thirdly, to review the model using experts to make sure that it works.

This study adds to the literature on providing service and care for the elderly with an integrated model that is based on what happens in Thailand rather than just using an international model.

2 Literature Review

2.1 Aging Society

2.1.1 Definition and Classification

International organizations define people aged 60 years and above as elderly persons, consistent with Thailand's Elderly Persons Act, 2003 [6]. Aging societies are classified into three levels: aging society (over 7% are 65 or older), aged society (over 14% are 65 or older), and super-aged society (over 20% are 65 or older) [6].

2.1.2 The Situation in Thailand

Thailand has already entered the status of an aged society, with elderly people comprising 20% of the total population [1], and is projected to transition into a super-aged society by 2035, a consequence of declining birth rates and increasing life expectancy [6]. This means that there needs to be a service system capable of comprehensively responding to the needs of the elderly population.

2.2 Wellness Centers

2.2.1 Significance and Role

Senior centers are very important in promoting the physical, mental, and social well-being of older people. They offer physical exercise, fun activities, learning, and social activities, which all improve the quality of life and encourage people to be independent. They also connect older adults to health services and community networks [7].

2.2.2 Best Practices in Management

Effective center management means having a clear plan, hiring specially trained staff, and having a safe building with items like ramps, non-slip flooring, and adequate lighting. It also involves offering activities that older people need, with family and community participation, and continuously working to improve services [7].

2.3 Digital Technology and the Aging Society

2.3.1 Applications of Digital Technology

Digital technology helps older adults to live better in many ways: in health, they can talk to their doctor online and use applications to monitor their health; in learning, they can get new knowledge from visiting websites; in social communication, they can use social media and video calls to talk to family and friends; and in daily life, through smart home systems and fall-detection sensors can help them in the home [8].

2.3.2 Challenges and Future Trends

Many older adults find it difficult to use new technology. This may be because they do not have access to it or because they find it is not easy to understand. Technology for older adults should be easy to use, be compatible with any physical limitations, and have ongoing support from family members or staff [1]. It is likely that the future care for the elderly will be with smart aging hubs. These are special, separate centers that combine learning, healthcare, and social services. They will use new technology like virtual reality, connected devices (the Internet of Things), and remote doctor visits.(telehealth) [9].

2.4 Conceptual and Theoretical Frameworks

2.4.1 The 7Ps Marketing Mix

The extended marketing mix expanded the original 4Ps concept to encompass service businesses; the result was seven dimensions: product/service, price, place, promotion, people, process, and physical evidence. This framework allows service organizations to form strategies that comprehensively address customer needs [10].

2.4.2 McKinsey 7-S Framework

The McKinsey 7-S framework is made up of seven interconnected elements: strategy, structure, systems, style, staff, skills, and shared values. For a company to be well-run, all the elements must function together rather than individually [11].

2.4.3 Theoretical Integration

Our study combines the marketing mix 7Ps and the McKinsey 7-S frameworks to create a new management model. It has two primary areas: the first is business management, focused on marketing strategy and customer experience, and the second is organizational management, which concentrates on how well the internal parts of a company work. In addition to the two primary areas, we used several

ideas related to management — the POSDCoRB model, Fayol's principles, and theories on systems, contingency, and stakeholders to produce a management model. The model is intended for use by health and recreational centers for older adults in the digital age.

3 Research Methodology

This study uses a mixed methods research design, with both detailed, descriptive (qualitative) and numerical (quantitative) information to give us better results. The research was done in three phases.

3.1 Phase 1: Qualitative Research

In the first phase, we had detailed interviews with 7 experts. We chose them for their knowledge in three areas: running health centers, government policies for older adults, and technology for older adults. They also needed: (a) to have at least five years of professional work experience of care for the elderly in one of these fields; (b) to be currently holding or had recently held a position as a center administrator, government policy officer, academic researcher, or specialist practitioner with expertise relevant to the study; and (c) they were willing to take part and could give detailed, critical input to the new management model. We created the interview questions based on earlier research and our study plan. Then, the experts checked them to make sure they were correct and agreed with the research objectives. We studied the information to identify the main ideas for the management of health recreational centers for older adults in the digital era; the ideas were then used to develop a questionnaire for the next, quantitative part of the study.

3.2 Phase 2: Quantitative Research

In phase 2, we made another questionnaire based on the findings from the Phase 1 interviews and a review of the relevant literature; this draft questionnaire contained 65 items. The validity of the content was reviewed by five experts using the item-objective congruence (IOC) index. Any items with an IOC value below 0.50 were eliminated, items scoring between 0.50 and 0.67 were revised, and items scoring above 0.67 were retained, in accordance with the standard IOC rules. Next, the revised questionnaire was tested with 30 people who shared similar characteristics with our target population to measure its reliability using Cronbach's alpha coefficient. The overall test score was 0.965, which was a very high level of consistency and well above the recommended level of 0.70 [12]. Using

Yamane's formula [9], we calculated that we needed 384 participants, which was rounded up to 400. We used a proportionate stratified sampling method to make sure that each group was represented fairly; this resulted in 133 samples from each of the public and non-profit centers and 134 from the private centers.

3.2.1 Data Analysis

We used the exploratory factor analysis method to identify the relationships between variables, with the evaluation criteria recommended in [13] and [14]: these were a KMO value of 0.50 or above, a statistically significant Bartlett's test of sphericity at the 0.05 level, factor loadings of 0.50 or above, eigenvalues of 1.00 or above, and a cumulative variance explained of 60% or above. For the extraction, we used the principal component analysis with varimax orthogonal rotation; this technique is widely used to organize data, making it easier to understand by creating distinct, unrelated factors [15]. Varimax rotation was chosen because we did not think that the different factors were related to each other, and an orthogonal solution was therefore considered appropriate.

3.3 Phase 3: Model Validation

In this phase, we showed the draft management model created from our data analysis to a group of 15 experts. These included specialists in elderly care, digital technology, health policy, and nursing, who gave us feedback on the model. They checked whether the model was good enough in six areas, using the five-point Likert rating scale, with an average score of 3.50 or above being the pass mark.

4 Research Findings

4.1 Key Components for Model Development

Based on the interviews and content analysis, the experts highlighted several key points: (1) setting out a clear goal and plan; (2) the design of facilities appropriate and safe for older adults; (3) the use of technology to make services better and easier for people to use; (4) training staff to know more about and have a positive attitude towards older adults; (5) the development of networks with other organizations; and (6) transparent and efficient budget management. The experts also said that it was important to see older adults as individuals experiencing a natural change of life rather than as patients.

4.2 Exploratory Factor Analysis Results

As shown in Table 1, the exploratory factor analysis confirmed that the data were good, with a KMO score of 0.894, substantially above the minimum requirement of 0.50. The data passed Bartlett's test of sphericity with a chi-square value of 41,923.830, which was statistically significant at the 0.001 level ($p < 0.05$). This confirmed that the variables are related enough to proceed with factor analysis.

Table 1. KMO and Bartlett's Test of Sphericity

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin		.894
Measure of Sampling Adequacy		
Bartlett's Test of Sphericity	Approx. Chi-Square	41,923.830
	df	4851
	Sig.	.001*

Note: * Statistically significant at the .05 level

Source: created by the authors

The analysis revealed that all 48 variables could be grouped into 6 components, with factor loadings ranging from 0.756 to 0.978, collectively explaining 72.85% of the total variance. The six components are: Component 1: Service delivery and operational processes (10 variables); Component 2: Strategic planning and organizational structure (9 variables); Component 3: Leadership and organizational culture (8 variables); Component 4: Personnel skills and competency (8 variables); Component 5: Marketing promotion and service personnel (7 variables); and Component 6: Physical environment (6 variables). Detailed factor loadings for each component are presented in Table 2 (Appendix), Table 3 (Appendix), Table 4 (Appendix), Table 5 (Appendix), Table 6 (Appendix) and Table 7 (Appendix). It should be noted that the EFA empirically identified 6 underlying components from the quantitative data. The final management model presented in this study, however, comprises 7 main components, as noted in the abstract and conclusion. This reflects a theoretically motivated differentiation applied following the focus group discussion in Phase 3: Component 1 (Service delivery and operational processes), which exhibited considerable breadth spanning both operational service delivery and overarching business-level strategy, was subsequently differentiated into two conceptually distinct constructs, namely (a) Business strategy and sustainability ecosystem, and (b) Service systems and digital technology, based on the recommendation of the expert panel and the theoretical rationale of the marketing mix 7Ps framework. The remaining five empirically extracted components were retained as

presented. The 7th component is thus theoretically derived and expert-confirmed rather than independently extracted by EFA, which the authors acknowledge as a limitation of the present study.

4.3 Structure of the Developed Management Model

The new management model has two main sections. The Business Management section has 4 main components and 10 sub-components, all based on the marketing mix 7Ps framework [10]: (1) Business strategy and sustainability ecosystem; (2) Location and facilities; (3) Service systems and digital technology; and (4) Marketing and digital communication. The Organizational Management dimension comprises 3 main components and 8 sub-components, aligned with McKinsey's 7-S framework [11]: (5) Organizational development; (6) Organizational culture; and (7) Personnel. The overall structure of the developed management model is presented in Figure 2.

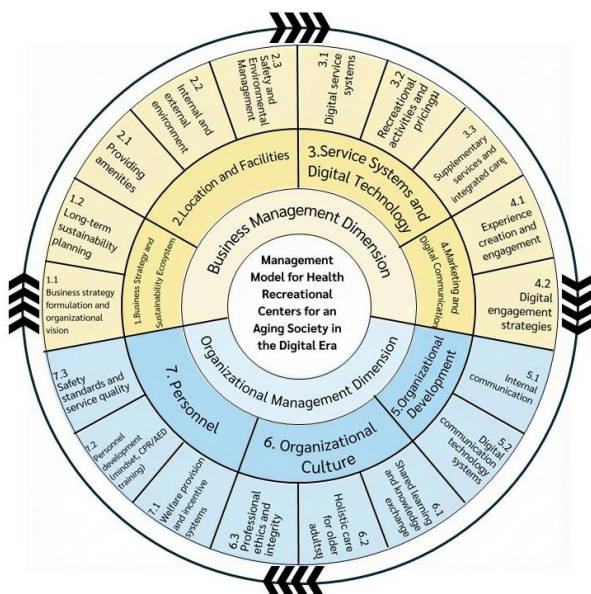


Fig. 2: Management Model for Health Recreational Centers Serving an Aging Society in the Digital Era
Source: created by the authors

4.4 Model Validation Results

The discussion group experts gave the model a very high score of 4.95 out of 5 (SD = 0.19) on the five-point Likert scale. The score is well above the pass mark of 3.50 for this study. The low standard deviation also shows that the experts agreed with each other, with very little difference in their opinions. The review covered six main areas: how complete the review of the literature was; if the method of creating the model was correct; if the parts of the model are correct and can be used; if the

model is actually useful; if the model is generally appropriate; and if it will be useful for future practitioners. Two recommendations from the experts led to digital technology being a central pillar of the model and to a requirement of cardiopulmonary resuscitation (CPR) and automated external defibrillator (AED) training for all center staff.

5 Discussion

5.1 Comprehensiveness and Completeness of the Model

Our new model combines business management with organizational management. If health centers for older adults are to succeed, they need more than just good care; they also need sound financial planning, enough staff, strong internal systems, and a clear purpose. This agrees with the systems theory that organizations are groups of connected parts that work together and constantly interact with the outside world [16]. Using both the 7Ps marketing strategies and McKinsey's 7-S framework helps these centers to run a business and provide social support at the same time; this matches the triple bottom line idea that businesses should focus on people, the planet, and profit [17].

5.2 Integration of Digital Technology with Elderly Service Delivery

The model uses a lot of digital technology, but research suggests that we must be careful how we use it for older adults in Thailand. The study showed that people consistently rated digital tools as only moderately important, and that they cared more about physical facilities and staff attitudes. This is not surprising as many elderly users of health recreational centers in Thailand have probably not used smartphones or health applications before, and some have problems with vision, hearing, or limited formal education. The model therefore focuses on training programs that start from basic digital skills rather than assuming that people already know them. This is consistent with the idea on helping people to use technology [18] and also matches a study that found that older adults in Thailand struggle to use digital learning because they are not used to technology [19].

5.3 Emphasis on Attitudes Toward Older Adults

This model works well because of its training, which teaches staff to view older adults as going through

natural life changes rather than as patients. It is better to concentrate on what each person actually needs rather than treating everyone in the same way [20]. A study of older Japanese adults found that supportive attitudes and psychosocial environments in care settings were associated with better well-being outcomes [4]. This finding supports this model's focus on changing how people think.

5.4 Safety Standards and Collaborative Networks

This model highlights safety in several ways: it uses the Universal Design principles [9] to make buildings easier to use, provides AED machines, and requires all staff to have CPR training. Changing the center's role from being a place that just provides services to one that is concerned with long-term care fits in with the idea of creating shared value [21]. The Health Data Management (HDM) network helps doctors and caregivers to share a patient's information safely, which makes it easier to provide more continuous and personalized care for older people.

5.5 Limitations

Although the model had very good test results, using it in the real world might be difficult. Problems could include a limited budget, different environments, and staff resistance to change. This study was conducted in the Bangkok Metropolitan Region, so the results might not apply to rural areas, which might not have good internet connections or properly trained workers. Also, poor or lower-income people may have trouble using these services; the costs involved, lack of transport, or not owning a smartphone or computer may stop them from getting help. Future research should test how the model is used not only in different parts of Thailand and with different economic groups, but also in other countries in Southeast Asia and other regions.

6 Conclusion

This study created a guide for running health and recreation centers that help older people in the digital age. It combines two well-known business models (marketing mix 7Ps and McKinsey 7-S) into one system. This has 2 main sections, 7 main components, 18 sub-components, and 48 minor components. A group of 15 experts reviewed the model and gave it a very high score of 4.95 out of 5 (SD=0.19), which is well above the pass mark of 3.50. The results provide advice for those who run health and recreational centers. Managers should

start by improving the attitude of the staff. Research shows that positive staff attitudes are the foundation for all other improvements. New technology should be introduced slowly with plenty of training, rather than all at once. This is important because many of the older people will have had little or no experience of it. Government agencies can use the model as a guide for making rules or setting budgets. This is helpful for public and non-profit centers that are likely to have less funding than private ones. Thailand's population is aging rapidly, which makes it all the more important to create clear rules for how elderly care centers should be run. The study presents facts to help create those rules.

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Contribution of Individual Authors to the Creation of a Scientific Article (Ghostwriting Policy)

Parichat Thanakornjirachod carried out the research design, data collection, and analysis, and was responsible for the overall manuscript preparation. Pawinee Boonyasopon provided principal academic supervision and reviewed the manuscript at all stages. Jutharat Pinthapataya contributed to instrument development and quantitative data analysis. Teravuti Boonyasopon contributed to conceptual framework development and manuscript revision.

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Conflict of Interest

The authors have no conflicts of interest to declare that are relevant to the content of this article.

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APPENDIX

Table 2. Component 1 — Service Delivery and Operational Processes (10 variables)

Item	Description	Factor Loading
3	The center offers training courses in digital technology skills (e.g., smartphones, health applications, social media)	0.885
39	The center provides an efficient and prompt service intake process	0.885
37	The center has a service support system for older adults (e.g., membership registration, appointment scheduling, activity booking)	0.879
9	The center charges annual membership fees to ensure service sustainability and continuity for members	0.874
41	The center has a user satisfaction evaluation system	0.871
5	The center provides safe transportation services for older adults with mobility limitations	0.869
7	The center provides a healthy food center	0.867
1	The center offers activities tailored to the needs of older adults (e.g., social gatherings, exercise, Tai Chi, ballroom dancing, rhythmic activities, excursions)	0.862
11	The center's membership fee covers accident insurance for older adults using services within the center	0.859
13	The center sets service fees and annual/monthly membership rates that reflect quality service standards	0.848

Source: created by the authors

Table 3. Component 2 — Strategic Planning and Organizational Structure (9 variables)

Item	Description	Factor Loading
83	The center has an efficient inter-departmental coordination system	0.840
85	The center has a personal health database system to support care planning	0.836
46	The organization has a clear vision to guide its business operational direction	0.836
50	The organization has long-term financial planning as a key success factor	0.829
56	The center includes elderly representatives in its governance structure to reflect genuine needs	0.829
48	The organization has a clear business plan to facilitate management	0.825
87	The center has a digital security system to protect the personal data of older adults	0.823
54	The center has a governing board composed of multidisciplinary experts	0.823
52	The organization has plans in place to accommodate changes in the elderly population	0.823

Source: created by the authors

Table 4. Component 3 — Leadership and Organizational Culture (8 variables)

Item	Description	Factor Loading
65	Center administrators employ constructive feedback approaches that benefit the organization	0.825
95	The center fosters an organizational culture that promotes shared learning between older adults and younger generations	0.820
97	The center cultivates an organizational culture that emphasizes continuous development	0.818
63	Center administrators employ flexible management approaches suited to the diverse needs of service recipients	0.816
99	The center cultivates an organizational culture that emphasizes social responsibility	0.816
93	The center builds an organizational culture grounded in holistic care as the foundation of service delivery	0.813
61	Center administrators use transparent and open decision-making processes to build trust	0.806
59	Center administrators employ participatory management approaches suited to elderly care contexts	0.803

Source: created by the authors

Table 5. Component 4 — Personnel Skills and Competency (8 variables)

Item	Description	Factor Loading
73	The center demonstrates the capacity to apply innovations in elderly care	0.772
79	The center has a welfare system that incentivizes personnel	0.767
77	The center has a standardized performance evaluation system for personnel	0.767
71	The center demonstrates the capacity to analyze and evaluate service delivery	0.765
69	The center possesses intergenerational communication skills to foster mutual understanding with older adults	0.763
81	The center has succession plans and development programs for emerging leaders	0.761
67	The center demonstrates the capacity to manage health data for elderly care	0.760
75	The center recruits personnel with qualifications appropriate to elderly care	0.756

Source: created by the authors

Table 6. Component 5 — Marketing Promotion and Service Personnel (7 variables)

Item	Description	Factor Loading
35	Center staff demonstrate professional service etiquette	0.837
24	The center conducts public relations through local electronic media (e.g., community radio, community Facebook pages)	0.834
31	Center staff possess communication skills for engaging with older adults	0.832
26	The center places community notice boards to raise awareness	0.827
33	Center staff have knowledge in activity facilitation	0.821
28	The center organizes special events to attract interest	0.820
30	Center staff possess specialized knowledge in elderly care	0.815

Source: created by the authors

Table 7. Component 6 — Physical Environment (6 variables)

Item	Description	Factor Loading
16	The center is located within a community that is easily accessible to older adults	0.907
18	The center has adequate parking facilities for older adults and their accompanying relatives	0.900
44	The center has an appropriate air conditioning system to create a comfortable environment for older adults	0.899
42	The center's building design prioritizes the safety of older adults	0.896
20	The center has a pleasant, shaded environment conducive to activity programs	0.886
22	The center's spaces are designed in accordance with Universal Design principles	0.881

Source: created by the authors