Modern marketing approaches in the elderly healthcare business: integrating technology and consumer behavior towards sustainability

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Abstract: The current landscape of elderly healthcare businesses is characterized by rapid change and intense competition. These businesses must evolve across multiple dimensions including technology, consumer behavior and market competition. The core principle for achieving sustainable future growth lies in adapting through modern marketing strategies, deploying appropriate technology and creating superior service experiences for users. Essential to this endeavor is a deep understanding of consumer behavior which exhibits specific demands relating to health, finance, social interaction and information access. Furthermore, building long-term sustainability is contingent upon fostering customer loyalty, driving innovation and cultivating a positive brand image. Collectively, these elements form the fundamental driving force for business expansion and for meeting the needs of an aging society in a sustained manner.

Keywords: Modern marketing; Health service business; Elderly

1. Introduction

Thai society and the global community are entering an aging society. In 2024, Thailand had approximately 13 million people aged 60 and over, accounting for about 20% of the population reaching the status of a Complete Aged Society while the country's birth rate continues to decline. It is projected that Thailand could transition toward a Super Aged Society, with over 30% of the population aged 60+ in coming years. Thailand can turn this demographic shift into an economic opportunity by developing the elderly care economy: creating industries and services for eldercare, elderly communities/villages, improving housing, expanding caregiver employment, promoting private investment in elderly care for both Thais and foreigners, becoming a regional center for geriatric medicine and anti-aging medicine, palliative care, developing related products and medical devices (including IoT devices for elders), nutritional supplements and health foods [1,2].

The elderly care market is attractive: in 2023 the nursing/eldercare center market was valued at THB 2,574 million and it is forecast to grow to THB 19,200 million within the next 10 years (TTB analytics, 2023). Given this potential, especially for health-related elderly services, this article presents theoretical perspectives on technology, consumer behavior, and marketing strategies to build sustainable elderly care businesses. The following sections elaborate on these themes.

Overview of the "One District, One Quality School" Policy

The "One District, One Quality School" policy is a national educational initiative aimed at reducing inequality and improving the quality of education across all districts in Thailand. The policy focuses on developing at least one high-quality school in each district to serve as a model institution, promoting equal access to quality education, efficient resource allocation, and continuous school improvement. This policy emphasizes educational standards, Teacher development, learning environment enhancement, and student-centered outcomes. Understanding this policy context is essential for interpreting the program evaluation results presented in this study.

The evaluation framework employed in this study is adapted from the outcome-based evaluation approach and sustainable development perspectives proposed by Kotler and Gordon [3,4]. These concepts emphasize long term value creation, stakeholder benefits, and sustainability as key indicators of program effectiveness. By applying these frameworks, the study systematically assesses whether the program achieves its intended objectives and contributes to sustainable educational quality improvement.

This program evaluation is grounded in established educational quality and policy evaluation frameworks. Specifically, the evaluation draws upon the logic model approach and outcome-based evaluation concepts, which emphasize the alignment between policy objectives, implementation processes, and measurable outcomes [3,4]. These frameworks enable systematic analysis of inputs, activities, outputs, and outcomes of the program, ensuring that the assessment is transparent, evidence-based, and academically sound.

2. Literature

2.1 concepts of technology and modern marketing

In the digital era, rapid technological development and the widespread application of artificial intelligence have significantly transformed traditional marketing — particularly in elderly health services as Thailand transitions to a full aging society [5]. Current marketers must adapt to compete and to meet changing consumer behaviors. Integration of modern technology with consumer behavior analytics, prioritization of sustainability and responsiveness to the needs of a growing elderly population have become key drivers of modern marketing success. This section presents concepts that blend technology with marketing tools to address elderly health service demands.

2.1.1 Concept of Technology

Contemporary technology has become a foundational driver of change across all sectors. Sangob Laksana (2009) provides a widely used systems definition, describing "technology" as the systematic application of concepts, principles, theories, tools to achieve efficiency and effectiveness in operations. The Ministry of Education [6] frames technology work as built on scientific foundations. While some expert in Thailand extends this to an economic dimension, viewing "digital technology and innovation" as tools to expand the capabilities of individuals and organizations with the aims of improving productivity, reducing costs and enhancing global competitiveness [7]. Chutidej Methichutikul [8] defines technology relationally: technology does not possess autonomous power; rather, it is interdependent on humans, and its roles shift according to the intentions and interactions of its users.

From these perspectives, technology can be summarized as knowledge systems created to increase efficiency and expand operational capacity, with outcomes ultimately depending on users' intentions.

2.1.2 Concept of Modern Marketing

Modern marketing evolves from traditional relationship marketing and focuses on systematic measurement of data across digital channels to decode customer behavior and user experience, using those insights as the foundation for business strategy [8]. Ek Pattharanakul [10] frames modern marketing philosophically as "Technology for Humanity," integrating human values with digital capabilities to craft seamless customer experiences. Rocket Digital [11] emphasizes that the essence of modern marketing lies in using marketing automation to study and analyze consumer behavior, enabling targeted campaigns and deeper personalization. Thus, modern marketing centers on data-driven approaches to create engagement and deliver superior customer experiences.

2.1.3 Technology and Modern Marketing (MarTech)

The convergence of technology and modern marketing has reshaped customer outreach. Amazon [9] defines MarTech (marketing technology) as the systematic application of software tools to increase efficiency and automation in marketing strategies, enabling organizations to achieve greater goals with fewer resources. ZortOut and DisruptIgnite [12] stress that the core of MarTech is leveraging AI and machine learning to analyze consumer data and generate precise promotional offerings and personalized experiences. Rocket Loyalty [13] highlights that establishing a MarTech stack requires seamless integration among tools to collect and exchange data that supports strategic decision making.

In summary, MarTech is the organized application of technological tools and software to optimize marketing strategy and automation, with AI and machine learning at its core for consumer data analysis and hyper-targeted marketing content and offers.

2.1.4 Technology, Modern Marketing, and Elderly Health Services

Integrating technology, modern marketing and elderly health services requires deep understanding across all three domains. K-Research (Kasikorn Research Center) defines "AgeTech" as technologies designed specifically to enhance the quality of life for older adults, covering not only physical health but also financial health, mental well-being and general living standards. Our Green Fish [14] describes the marketing role in integrating technology and modern marketing for health services: using MarTech to create engagement and personalized experiences for patients, leveraging AI and data analytics to deliver timely, need-based communications to older adults. Siripong Thanmun [15] emphasizes qualitative outcomes: the success of technology marketing integration in elderly health services depends on delivering quality across five service dimensions especially trustworthiness, assurance, deep knowledge and understanding of service users. This integrative approach uses technology to provide comprehensive, reliable care that responds to the individual needs of older persons and their caregivers.

Digital Marketing and AI Marketing

Digital channels have become essential to reach older adults and their families, since technology increasingly permeates daily life from shopping to travel planning. Artificial Intelligence enhances digital capabilities by analyzing large datasets and tailoring promotions for individual needs. For elderly services, these technologies enable service notifications, appointment reminders and customized care offers adapted to each elder's needs and behavior for example, medication reminder systems that align with an individual's actual routine or chatbots that handle basic care inquiries, making provider patient communication faster and more user-friendly.

Data-driven Marketing

Data-driven marketing illuminates the customer journey, enabling the design of precise experiences and more accurate behavior forecasting. Investing in data collection and analytics improves campaign effectiveness and reduces the risk of intuition-based decisions. For elderly services, insights can be used to optimize home visit schedules, recommend care programs aligned with users' medical risks or conditions and execute real-time marketing such as emergency alerts, recommendations for assistive devices, or appointment reminders triggered by actual elder behavior all improving care quality and satisfaction.

Social Media Marketing and E-Commerce

Social media is an important channel to reach broad audiences and stimulate engagement; short-form video and interactive experiences boost awareness and purchase decisions. E-commerce combined with AI-driven recommendations makes online purchases more convenient and relevant. For elderly services, social platforms and e-commerce provide easier access to necessary products and services e.g., online stores for mobility aids, home delivery of medications, or short, easy-to-understand educational content. Short videos and live streams can demonstrate product use or physiotherapy routines for older adults, making communication effective and targeted.

2.2 concepts of consumer behavior among older adults

This section presents notable details on elderly consumer behavior identified by the researchers.

2.2.1 Definition of Consumer Behavior

Consumer behavior refers to the study of how individuals, groups or organizations decide to purchase, use, or dispose of products, services, or ideas to satisfy their needs encompassing cognitive and emotional processes before and after purchase.

Scholars define consumer behavior as follows:

Philip Kotler [16] described consumer behavior as the process by which consumers decide to purchase goods or services to meet their needs.

James F. Engel [17] defined consumer behavior as actions related to acquiring products or services.

Lemon & Schiffman [18] described consumer behavior as the behaviors consumers exhibit in searching for, purchasing, using, evaluating, and disposing of products and services expected to satisfy their needs.

From these definitions, consumer behavior encompasses the entire process related to purchasing, using, and evaluating products or services to meet needs and satisfaction including information search, comparison, purchase decision and post-use evaluation.

2.2.2 Elderly Consumer Behavior

Studies on elderly consumer behavior identify characteristics across generational cohorts:

Greatest Generation (born 1910–1924): According to Wikipedia [19], this cohort — now centenarians or near that age were shaped by World War I and the Great Depression. They tend to be extremely frugal and survival-oriented, spending only on essentials and remaining loyal to long-trusted brands. Their decisions rely on experienced, trusted advisors, and they generally avoid new technologies and digital marketing, preferring traditional in-person transactions.

Silent Generation (born 1928–1945): Meharaj Banu & Ashoka [20] note that this generation, influenced by wartime and economic hardship, values frugality and stability. They prioritize quality and durability over trends, demonstrate strong brand loyalty, take time to make considered purchases and often relying on trusted sources (experts or family). They prefer in-store shopping for the perceived security and ability to inspect products directly. Marketing to this group should stress sincerity and trustworthiness.

Baby Boomers (born 1946–1964): As described by Nivet Thamma and colleagues [21], Baby Boomers are currently aged roughly 59–77 and form a large segment of today's older population. Raised in a pre-digital era, many have limited familiarity with digital technologies, reflected in lower average daily internet usage. Nevertheless, they possess considerable purchasing power. Marketing strategies should not rely solely on online channels; offline media still matter for reaching this group. Marketers must identify and adapt to generational differences to design targeted strategies for this significant cohort.

2.3 concepts of the elderly care business

Thailand has entered a fully aged society; national statistics show a continuous increase in the population aged 60 and over rising from 6.8% in 1994 to 20.0% in 2024 [22]. This demographic change gives rise to concerns about elder care — livelihood, health management and disease treatment. Understanding potential health issues among older adults, their prevention, care methods help them live longer and healthier lives. Health problems common among older people fall into two main groups: (1) common chronic diseases that occur across ages (e.g., diabetes, hypertension, heart disease, kidney disease), which increase with age; and (2) age-specific conditions arising from physiological aging or as complications from multiple comorbidities leading to reduced self-care capacity (Department of Older Persons, Ministry of Social Development and Human Security, 2021). The rapidly expanding elderly population makes elder care a key global issue. Technological advances open new dimensions to improve older adults' quality of life and reduce caregiver burdens.

2.3.1 Definition of Older Adult

Scholars provide various definitions of "older adult." Nongnuch Chawsin [23] notes terminological differences across countries; in Thailand the common term is older. The United Nations uses "older person" for populations aged 60 and over. The Royal Institute Dictionary (1999) defines the aged as people who are old or in old age. The Department of Health (2024) defines older adults as persons aged 60 and above. She also summarizes that an older adult is someone aged 60 or above a stage when physical, social and role changes typically occur and when physical, mental, social and emotional decline may warrant special care and respect.

The researchers therefore adopt age more than 60 years old as the benchmark for older adults.

2.3.2 Categories of Older Adults

Vachakorn Noppanarin [24] and Banlu Siriphanich [25] explain that the National Institute for Aging classifies older adults into two groups:

1) Young old (age 60–74): not yet very old and often still able to work if physically and mentally healthy.

2) Old (age 75+): considered truly elderly.

Other classifications divide older adults into three groups: early older age (60–69), middle older age (70–79) and late older age (80+). These groups have varying degrees of physical and physiological changes and differing needs for self-care or assistance [25]

Older adults bring lived experience, wisdom, knowledge and skills but they also face challenges in emotional, psychological, health and social domains. Banlu Siriphanich [24] further divides older adults into:

1. Early older adults (60–70): physical and physiological conditions remain relatively stable; can largely self-care.

2. Middle older adults (71–80): physiological changes become more evident; some dependence and occasional need for assistance.

3. Late older adults (81+): pronounced physical and physiological decline; some have disabilities and may require extensive assistance.

2.3.3 Elderly Care Business

Supinya Wutipant [26] notes that the expansion of the elderly population has driven specialized services for this consumer group. Diverse needs and increased spending power have prompted new service businesses — for example, job placement services for post-retirement income, in-home health check services, specially adapted elder transport services, shopping assistance services in malls and retirement planning funds. These trends mirror global practices that target post-retirement life needs.

Types of Elderly Service Businesses

Yosnan Kaewkomonmalai [27] categorizes elderly service businesses into types based on service units:

1. Elderly care facilities: services for short-term and long-term care, covering dependent and semi-dependent elders (e.g., bedridden, muscle weakness, hemiplegia, stroke patients), including rehabilitative and post-operative recovery care.

2. Care and rehabilitation centers: services for those who voluntarily use facility-based services and for the general public seeking rehabilitation and preventive health services (e.g., physiotherapy clinics, rehabilitation medicine clinics, Thai and Chinese traditional massage, acupuncture).

K-Research [28] identifies two beneficiary business groups from an aging society:

1. Health-focused businesses: food & beverage and healthcare services account for over 37% of elders' spending, higher than other age groups by about 3%. Survey data indicate about 65% of older Thais express interest in health-related goods and services. Opportunity areas include specialty disease centers, pharmaceuticals and medical supplies, eldercare services (nursing homes and caregivers) and health tourism. Food products tailored for elders should be easy to chew and digest, appropriately sized, and nutritionally complete.

2. Lifestyle-oriented businesses (over 63% of spending): though purchases are less frequent, transaction values can be high. Growth sectors include Age Tech and smart devices (voice control, motion detection cameras, emergency alert devices, smart canes, hearing aids) with user-friendly design and larger displays; pet-related services (as companionship); elder housing (only 728 projects nationwide, serving ~19,490 people indicating market gaps); and financial and entertainment services such as elder loans, reverse mortgages and brain-health entertainment/games to prevent cognitive decline and enhance quality of life.

Overall, these business groups both generate revenue and address the modern elder's demand for convenience, safety, and happiness.

2.3.4 Concept of Elderly Health Services

Elderly health services are a comprehensive system of prevention, treatment and rehabilitation for those aged 60+. The Boromarajonani College of Nursing [29] defines elderly healthcare as grounded in a holistic health approach that balances and connects all personal dimensions: physical, mental, social and spiritual. Chayanupak Khunpiluk [30] emphasizes that the primary goal of modern elderly care is to enhance intrinsic capacity and functional ability to slow decline and promote healthy aging. Lom Sak Hospital [31] and Grace Barker Health (holistic care experts) further state that elder care should focus on person centered and cause-based approaches rather than disease centered treatment, requiring collaboration between older adults and multidisciplinary teams for sustainable outcomes. The concept thus aims for comprehensive care to preserve autonomy as much as possible.

2.4. marketing concepts for sustainability

To operate successfully today, businesses must emphasize long-term stability. Key marketing strategies that create long-term sustainability include the following.

2.4.1 Definition of Sustainable Marketing

Studying sustainable marketing is crucial for organizations in a technology-driven era because it builds competitive advantage and stakeholder trust (customers, partners, suppliers). Trust is a vital factor for steady, sustainable growth of both business and society. Scholars define sustainable marketing in multiple ways:

Philip Kotler [32] frames sustainable marketing as the practice enabling businesses to meet present consumer needs without compromising future generations' ability to meet theirs. Sustainability is not the sole responsibility of one organization; all sectors should evaluate how their activities contribute to societal sustainability. Sustainable marketing plays an essential role in promoting marketing activities and strategies that enhance environmental well-being, social equity and economic development to support long-term business viability.

Ross Gordon et al. [4] describe sustainable marketing as a blend of three concepts: (1) green marketing developing and marketing environmentally friendly products and services (e.g., reducing packaging, energy-efficient production); (2) social marketing promoting sustainable behaviors across the value chain and supporting eco-friendly products; and (3) critical marketing analyzing markets with a sustainability emphasis to guide discipline and stimulate innovation through collaboration among market systems, institutions, and governments.

Nathakrit Wantamail [33] defines sustainable marketing (or marketing for sustainability) as marketing activities that balance economic, social and environmental dimensions to achieve organizational growth sustainably.

Martina Bretous [34] defines sustainable marketing as promoting products and services based on social responsibility principles by integrating sustainability into business strategy and mission.

From these perspectives, sustainable marketing is the process of designing and executing marketing strategies that not only satisfy consumers and generate profit but also maintain balance among economic, social and environmental dimensions to support sustainable development and preserve good long-term customer relationships. Businesses in elderly healthcare must apply these three principles to achieve sustainability.

2.4.2 What Makes a Business Sustainable

Sasima Suksawang [35] states that gradual, consistent change counts as innovation and should proceed continuously to facilitate sustainable growth. Innovation is continuous development in people, business processes, products and services and enabling organizations to grow sustainably. Innovation the use of creativity to develop valuable and beneficial new services, products, or processes leads to commercial scalability when it holds value. Therefore, organizational members must understand innovation components to think, develop and implement ideas effectively. Shifting from a fixed mindset to a growth mindset and starting with small collaborative projects that reward creative ideas fosters innovation within an organization.

2.4.3 Organizational Approaches to Innovation

John S. Rydz (1986) [36] proposed the following approach to organizational innovation:

1. Know your business: 1) Know your customers and what they actually need (which may differ from assumptions). 2) Know your competitors (they may not be who you think they are). 3) Know yourself and your competencies (you may not fully recognize your strengths).

2. Create business innovations:

2.1 Use 3-D management:

First Dimension: Good reporting and performance measurement.
Second Dimension: Negotiation, discussion, and collaboration.
Third Dimension: Manage change and move away from traditional management.

2.2 Use cross-functional teams to increase knowledge transfer and collective learning.

2.3 Stimulate innovation by exploring paths to success, allowing room for failure, listening to all ideas and rewarding contributions publicly.

Eldercare businesses should adapt for an aging society, especially by adopting technologies that though initially capital-intensive are expected to be cost-effective in the medium to long term as prices drop. For example, industrial robot prices are expected to fall at an average CAGR of 11% (2017–2025), and AI adoption costs are likely to decline as models and capabilities advance (including Gen-AI like ChatGPT, Gemini, Claude-3), improving SMEs' access to technology [28]. Using organizational innovation frameworks to shift corporate mindsets is essential to create products and services that maximize user satisfaction and preference.

2.5. summary of new knowledge

Elderly healthcare is a distinct form of service business. Organizations should study older adults' behavior and needs across life stages and develop innovations that differentiate them from competitors to achieve sustainability. Integrating modern technology enhances capacity for elder care and increases user confidence in service selection.

Elderly health services are comprehensive systems of prevention, treatment, and rehabilitation for people aged 60+. Incorporating artificial intelligence into systems, devices, and care methods helps analyze conditions and customize care. Targeted, data informed approaches that respond to older adults' specific needs are crucial for the long-term sustainability of eldercare businesses.

Figure 1. Integration of technology and modern marketing in elderly healthcare business.

8. Patents

Conflicts of Interest: The authors declare no conflicts of financial interest or personal relationships that could have appeared to influence the work reported in this paper.

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