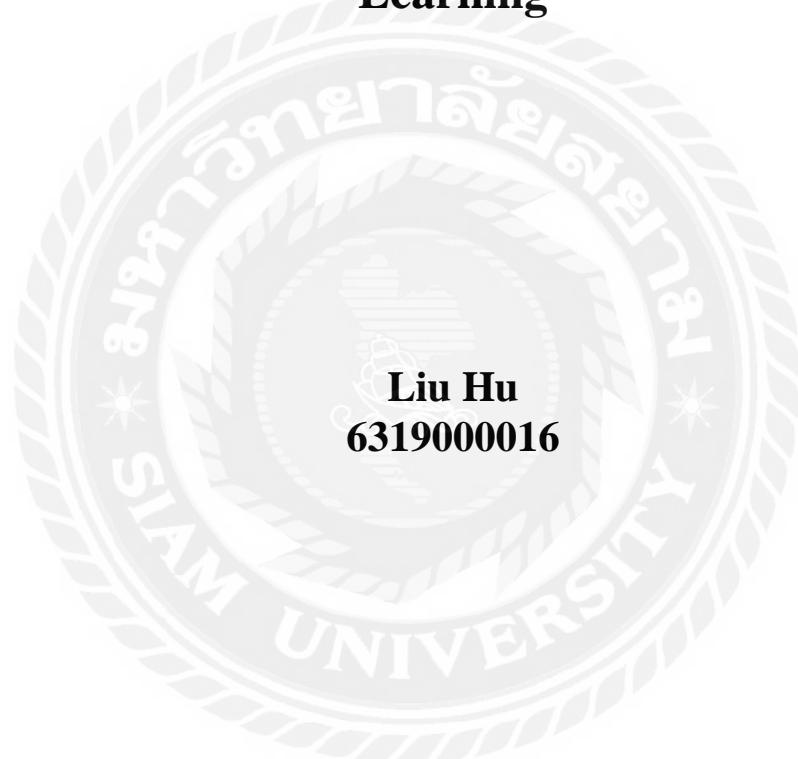




Management Strategies of the Innovative Library in Luoyang City Based on the Concept of Lifelong Learning



**A Dissertation Submitted in Partial Fulfillment of the
Requirements for the Degree of Doctor of Philosophy in
Educational Administration Innovation
Graduate School of Education
Siam University, Academic Year 2025
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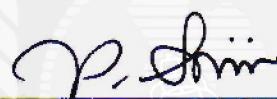
Graduate School of Education, Siam University approved to accept this Dissertation as part of Doctoral of Philosophy Program in Educational Administration Innovation.



Dean of Graduate School of Education

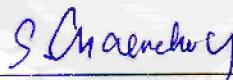
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Abstract

Title : Management Strategies of the Innovative Library in Luoyang City Based on the Concept of Lifelong Learning

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This study aimed to develop management strategies for innovative libraries in Luoyang City based on the concept of lifelong learning, which incorporates four core dimensions: learning to know, learning to do, learning to live together, and learning to be. A mixed-methods approach was employed, beginning with a quantitative survey of 408 participants from 136 innovative libraries to analyze current and desired management conditions. The Priority Needs Index (PNI-modified) revealed significant developmental gaps, particularly in human resource management and the lifelong learning dimension of “learning to do”.

The second objective involved a SWOT analysis, which identified strengths in information services and budgeting, while human resource management and applied learning practices were key weaknesses. Technological advancements and economic support were seen as opportunities, whereas social and political constraints were perceived as threats.

To address these findings, the third objective developed six main strategies, 24 sub-strategies, and 72 actionable procedures through TOWS matrix analysis and iterative refinement by expert focus groups and library managers. These strategies emphasized enhancing practical skills, strengthening community engagement, and integrating smart technologies to support lifelong learning.

The final strategies were evaluated for suitability, feasibility, and applicability, resulting in positive assessments from both experts and practitioners. This research offers practical guidance for educational administrators, policymakers, and library managers aiming to transform innovative libraries into dynamic, inclusive, and sustainable learning environments.

Keywords: Innovative library, Lifelong learning, Management strategy, PNI-modified, SWOT analysis.

Approved By



Professor Emeritus Dr. Chanita Rukspollmuang
Advisor

Acknowledgement

I would like to express my deepest gratitude to my esteemed advisors, Professor Emeritus Dr. Chanita Ruksopollmuang and Assistant Professor Dr. Pongsin Viseshsiri, for their invaluable guidance, thoughtful insights, and unwavering support throughout the course of this dissertation. Their academic mentorship has been instrumental in shaping both the direction and the quality of this research.

I am also sincerely thankful to the members of the dissertation committee for their critical evaluations and constructive feedback, which have significantly contributed to the refinement of this study.

My appreciation extends to the doctoral program in educational administration at Siam University. I am particularly grateful to the faculty and administrative staff of the Graduate School for providing a supportive academic environment that fostered my intellectual growth.

Special thanks are due to the managers and users of the innovative libraries in Luoyang City, whose participation and cooperation were vital to this study. I am especially grateful to the experts and stakeholders who generously contributed their time and insights during the focus group discussions and evaluation processes.

Lastly, I wish to express my heartfelt gratitude to my family for their continuous encouragement, understanding, and belief in me. Their unwavering support has been a profound source of strength throughout this academic journey.

Liu Hu

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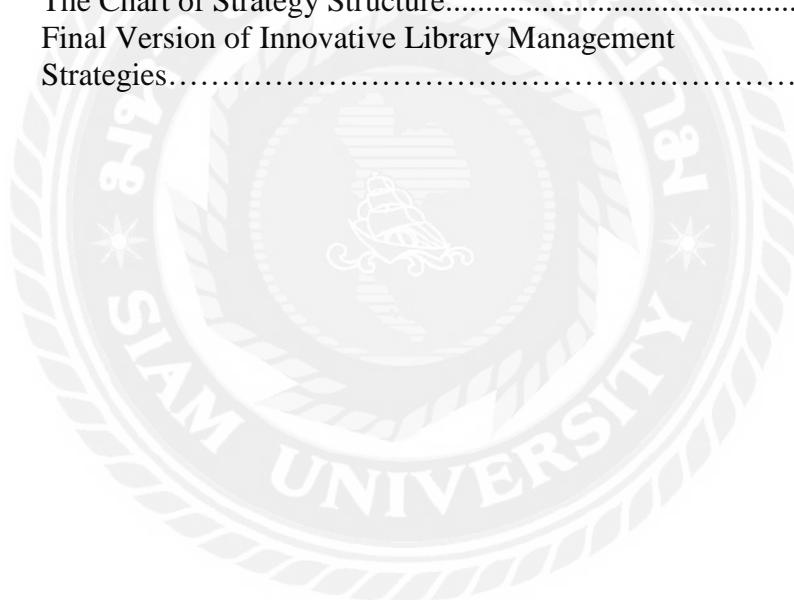
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Chapter 1

Introduction

1.1 Background and Significance of the Research

Luoyang is the birthplace of Chinese culture, the capital of thirteen dynasties, the political, economic, and cultural center of ancient China, and the starting point of the Silk Road, with a rich cultural heritage (Li, 2013). Luoyang is a big and innovative city. It is the city with the fastest growth rate of innovative libraries in central China. The people here like to study and want to use innovative technology. Although there are big traditional libraries, there is more demand for innovative libraries because they can deliver various resources to the places closest to the people and provide people with a learning environment and learning resources anytime and anywhere (Wang, 2020). In China, Wenzhou is the first place to open an innovative library. In April 2014, the city of Wenzhou opened China's first pilot innovative library. It was the first city to build an innovative library, which inspired by launching a 24-hour closed-service model of the Beijing Sanlian bookstore. Wenzhou decided to start the construction of an innovative library after the investigation of Taiwan Eslite bookstore (Hu, 2016).

In the first few years, innovative libraries did not get much attention in China; the development of innovative libraries in the city is relatively few, and the construction speed is relatively slow. With the successful development of innovative libraries in Wenzhou city, plus a lot of media publicity, innovative libraries began to develop rapidly across the country. As of 2022, the number of innovative libraries in Luoyang City has reached 205 (Luoyang Municipal Bureau of Statistics, 2023), and in Wenzhou City, it has reached 135 (Wenzhou Municipal Bureau of Statistics, 2023). According to statistics, as of 2022, the number of innovative libraries in China has reached over 5000 (researchers collected data from various local government websites, 2023).

The innovative library is a self-service physical public library led by the government, allowing social forces to participate. It relies on public libraries at all levels, adopts automation equipment and radio frequency technology, and realizes integrated services (Figure 1.1, 1.2). The introduction of innovative libraries reflects the concept of adhering to innovative service, and the construction of innovative libraries has been extended from key cities to the whole country. The construction of an innovative library is in full swing, and its construction and development concept is "Innovative development of public cultural space." Innovative libraries have developed rapidly by virtue of their public welfare, universality, convenience, comfort, and other advantages. The innovative library has different naming methods in various cities, and each city can name it according to its own cultural heritage. Some cities refer to it as "City study," while others refer to it as "Smart library," "Community library," "Innovative library," etc. In order to facilitate the understanding of this research, "Innovative library" is used as the general term for this kind of library.

In the innovative library, users can use face recognition or ID cards to enter the library. Through artificial intelligence, big data analysis, and other technologies, the library will recommend your favorite books and digital resources. After selecting a book, the user can borrow the book directly from the self-service machine or choose to read an e-book and download the resource to his phone or computer. The innovative library has a smart home system that can monitor lighting, temperature, air quality, and

crowd flow in the library in real-time and automatically adjust it. Radiofrequency identification (RFID) is an Internet of Things technology that can remotely sense whether the book the user wants to take has been processed. If not, the library door will alarm and remain closed.



Figure 1.1 Innovative library in the park



Figure 1.2 Innovative Library in the Shopping Mall

In the early 1940s, the term "lifelong learning" was first proposed and used by the "University Open Department" of the University of California. In 1949, UNESCO put "lifelong learning" as a term on the international agenda at the Elsinore Conference, the first International Adult Education Congress held in Denmark (Volles, 2016). In 1972, UNESCO pointed out in its report "Learning to Survive -- Today and Tomorrow in the World of Education" that the future society should be a society of lifelong continuous learning (Biesta, 2006). Lifelong learning was thus advocated and spread internationally. In November 1976, UNESCO, in its recommendation on the Development of Adult Education, put forward the concept of lifelong learning for the first time.

With the continuous development of China's economy, the people's material living standards are constantly improving. However, the improvement in material life has not brought an increase in people's happiness (Zhang, 2022). The fundamental reason why people's spiritual life is so unsatisfactory today when material life is so rich is that with the rapid development of science and technology, especially the rise of digital information, internet, and big data technology, the total amount of knowledge in human society is growing exponentially, and the constant updating of knowledge also speeds up the aging speed of knowledge. People will soon fall behind in their reserves of knowledge, so they need to keep learning to fill their fears. As President Xi Jinping pointed out in the report of the Nineteenth National Congress: "Socialism with Chinese characteristics has entered a new era, and the principal contradiction in our society has been transformed into the contradiction between the people's growing needs for a better life and unbalanced and inadequate development." (Xi, 2017).

Therefore, how to make people keep pace with The Times and not be eliminated by the rapidly developing society through continuous lifelong learning, constantly enriching people's spiritual lives, and improving people's happiness is an urgent problem for China to solve. The Chinese government attaches great importance to the development of lifelong learning and revised the "Education Law" to promote lifelong learning development in 2015. As the research on lifelong learning of citizens in the world gradually changes from theory to practice, China has also promulgated many policies related to lifelong education. Still, specific models and facilities for lifelong learning in China have been developing slowly (Hao, 2011). However, in recent years, the Chinese government's emphasis on lifelong learning has accelerated its development, and various fields in China are currently actively discussing how to implement the policy. Most experts still limit lifelong learning simply to the field of education without focusing on society as a whole. The government has not yet clarified the implementation details of lifelong learning, and various regions are actively exploring the development model of lifelong learning. So far, there is still no specific implementation method or institution, so China urgently needs an innovative development model of lifelong education for pilot projects (Song et al. 2008).

The first session of the International Learning Cities Conference was held in Beijing, China, in October 2013. The conference adopted two important outcome documents, the Beijing Declaration on Building Learning Cities and Key Features of Learning Cities, which clarified the essential characteristics of learning cities. It also puts forward the main strategy of learning cities, which has far-reaching significance for promoting the construction of learning cities worldwide.

At present, the main work carried out by innovative libraries is still the space service and borrowing service of cultural attributes (Zhang, 2020). In September 2019, President Xi Jinping proposed that libraries "innovate service methods, promote reading for all, and better meet the people's spiritual and cultural needs.". In the 20th National Congress of China in 2022, President Xi Jinping pointed out that China should be built into a lifelong learning society, and the construction of a lifelong learning society should be elevated to a national strategic level.

As early as the 20th century, many experts proposed that the library is the best place for lifelong learning. The Declaration on Public Libraries (1996) states that public libraries are units that provide the basic conditions for lifelong education, free decision-making, and cultural development of individuals and social groups. In the early 20th century, the first batch of public libraries appeared in China. By the end of 2021, there were 3,217 public libraries at or above the county level. The nature of the public library is not to train a few scholars but to educate tens of millions of people, not to seek profound academic theory but to popularize national education. Li (1919) mentioned in his Speech on the Second Anniversary of the Beijing Higher Normal Library that the library and education are closely related. If we want to develop education, we must ensure that the people of the whole country have access to research and learning at all times and places.

This research aims to examine the current problems of slow implementation of lifelong learning and the insufficiencies of innovative libraries in fulfilling the government's requirements of promoting national reading and lifelong learning and building a learning society. Still, innovative libraries are rapidly developing, and innovative library management strategies based on lifelong learning are being proposed. This innovative approach can help the government solve the problem of lifelong learning with minimal fiscal expenditure.

The innovative library is one of the best lifelong learning models. It relies on its advantages, greatly expanding the coverage of lifelong learning and enriching people's spiritual lives.

First of all, the innovative library has rapidly developed in various cities in China, mainly distributed in densely populated communities, shopping malls, parks, and other places. They can provide people with convenient learning places and various resources. Making good use of existing innovative libraries to solve lifelong learning problems is the method with the least government investment.

Secondly, as a fundamental cultural facility, the innovative library also has an essential social-educational function: the organic integration of culture and education. As a national public welfare cultural unit, innovative libraries have inherent advantages in carrying out educational functions. One of the main objectives of establishing the innovative library is to promote national reading and national lifelong learning and to build a learning society.

Thirdly, in recent years, the Chinese government has repeatedly required innovative libraries to play a full role in their educational functions to promote national reading, national life-long learning, and lifelong education. In important meetings or activities, the Chinese government and leaders have repeatedly proposed that libraries should fully promote national lifelong learning.

Fourthly, the innovative library is different from the traditional library. A traditional library is usually a large and magnificent place, but only people nearby often

go there. For people who live far away, the time cost of going there is too high. The area of the innovative library does not need to be very large; its distribution is extensive. It is mainly built in densely populated parks, shopping malls, communities, and other locations, sending library resources to the nearest place for citizens. Based on factors such as the local population, population distribution, environment, and transportation conditions, various regions will plan and layout comprehensively, establish a public library unified management system covering both urban and rural areas, and determine the number, scale, and distribution of innovative library according to local conditions.

The innovative library's core goal is to provide convenience for people to study anytime and anywhere with minimal effort. It can more beneficially promote the development of lifelong learning and strive to create a "15-minute reading circle". It is committed to meeting individual needs and serving people in different industries and social roles. The development of the innovative library allows a person to study anytime, anywhere, and in any way. It has been proven that innovative libraries are more conducive to developing lifelong learning than traditional libraries.

Drawing on the sound development situation of innovative libraries in the cultural sector and their inherent educational attributes, the innovative library is also a kind of innovation of the lifelong learning model. Its appearance will change the current pattern of lifelong education. At the same time, its appearance promotes the innovation of educational management to adapt to the development of new educational models. With the change of new educational goals, educational environment, and other factors, leaders need to innovate the way of leadership and educate people of all ages and types in a more open, flexible, and practical way.

Lifelong learning is a problem that needs the joint efforts of the whole society. Although culture and education are mutually reinforcing, the mode of using innovative libraries to develop lifelong learning is currently in the exploratory stage, which is an innovative point of view. It is an innovative model of using innovative libraries to build lifelong learning.

At present, in response to the call of the Chinese government to create a learning society, China is actively building innovative libraries across the country. Still, there is no official unified understanding of the management strategy of innovative libraries across the country. Some local regulations focus on the management of innovative libraries by the government library headquarters but have not formed the management strategy for innovative libraries themselves (The Wenzhou Municipal People's Government Office, 2020; The Luoyang Municipal People's Government Office, 2021; The Yangzhou Municipal People's Government Office, 2022).

In order to promote China's plan to build a lifelong learning society and provide direction reference for government decision-making and deployment, the study proposes management strategies for the innovative library based on the concept of lifelong learning in response to the existing problems of slow implementation of lifelong learning policies and the failure of innovative libraries to exert their educational functions fully.

1.2 Research Questions

1.2.1 What are the current and desired situations of the management of the innovative library based on the concept of lifelong learning?

1.2.2 What are the strengths, weaknesses, opportunities, and threats of the management of the innovative library based on the concept of lifelong learning?

1.2.3 What management strategies should be developed for the innovative library based on the concept of lifelong learning?

1.3 Research Objectives

By analyzing the problems existing in the development process of lifelong learning and studying the relationship between innovative libraries and lifelong learning, this research aims to explore an innovative development mode of lifelong learning, fill the gap in the current integration of culture and lifelong learning, and provide a new way of thinking for the development of lifelong learning.

1.3.1 To explore the current and desired situations of the management of the Innovative Library based on the concept of lifelong learning.

1.3.2 To analyze the strengths, weaknesses, opportunities, and threats of the management of the Innovative Library based on the concept of lifelong learning.

1.3.3 To develop management strategies for the innovative library based on the concept of lifelong learning.

1.4 Definitions of Terms

1.4.1 Definitions of Independent Variables

Innovative Library is a self-service, technology-driven public library model distinct from traditional libraries in China. Unlike centralized institutions with fixed hours, innovative libraries can operate 24/7 with minimal supervision, using AI, RFID, and digital learning platforms to enhance accessibility. Strategically located in shopping malls, parks, and communities, they reduce barriers to learning by offering flexible spaces, AI-powered recommendations, and interactive educational programs, fostering a modern, lifelong learning ecosystem.

Innovative Library Management means ensuring the efficient operation of self-service, technology-driven libraries that promote lifelong learning. It consists of Management Work, including planning, organizing, budgeting, and resource management, as well as Service Work, which covers information access, research support, space utilization, and educational programs. Unlike traditional libraries, innovative libraries leverage automation, AI, and decentralized models to provide flexible, user-friendly, and technology-enhanced learning environments.

Management Work

This refers to the strategic operation of the library, ensuring efficiency, accessibility, and adaptability. Key aspects include:

Planning: Unlike traditional libraries that follow a rigid bureaucratic framework, innovative libraries require agile planning that incorporates emerging digital trends, user needs, and flexible resource allocation.

Organizing: Traditional libraries follow hierarchical management, whereas innovative libraries adopt a decentralized networked model, allowing multiple branch locations to function independently while maintaining standardized operations.

Human Resource Management: Instead of relying on large in-person staff, innovative libraries use automated systems and digital management tools, requiring specialized training in AI-assisted library services.

Directing: Leadership in innovative libraries focuses on digital transformation and service efficiency, ensuring a seamless integration of smart technology into library operations.

Coordinating: These libraries establish partnerships beyond government institutions, collaborating with tech companies, universities, and digital education providers.

Reporting: Unlike traditional methods of manual tracking, innovative libraries utilize real-time data analytics and AI-generated reports to evaluate user engagement and optimize resources.

Budgeting: Innovative libraries require technology-focused financial planning, including allocating funds to smart infrastructure, AI learning tools, and automated system maintenance.

Information Resource Management: Traditional libraries rely on manual cataloging; however, innovative libraries use AI-powered indexing, cloud-based databases, and interactive e-learning platforms for efficient resource management.

Service Work

The service operation of innovative libraries goes beyond book lending and provides modernized, digital-first, and community-driven learning experiences. Key aspects include:

Information Service: While traditional libraries provide book lending and research assistance, innovative libraries enhance accessibility through 24/7 digital libraries, AI-powered reading recommendations, and remote access to online resources.

Research Service: Instead of just offering physical reference sections, innovative libraries support data-driven research tools, virtual research assistance, and AI-based knowledge hubs.

Space Service: Unlike traditional reading rooms, innovative libraries provide flexible, technology-enhanced environments that encourage interactive, collaborative learning, and immersive digital experiences through AR/VR technologies.

Educational Training: Traditional libraries focus on passive reading, while innovative libraries integrate interactive workshops, online webinars, coding boot camps, and AI-driven learning simulations.

1.4.2 Definitions of Dependent Variables

Lifelong Learning refers to the continuous, voluntary, and self-motivated pursuit of knowledge by people for personal or professional reasons throughout their lives. It is essential for an individual's competitiveness and employability, enhancing social inclusion, active citizenship, and personal development. Learning is a normal part of everyday life and an integral part of relationships from birth to our final days (The ELLI Index – Europe, 2010). Innovative libraries, with their accessible resources, smart technology, and flexible learning spaces, serve as important facilitators of lifelong learning by enabling individuals to acquire and apply knowledge in a dynamic, user-centered environment.

This research first analyzed the characteristics of library management work that should be provided to foster lifelong learning. Then, this research analyzed what work should be provided to foster lifelong learning. The characteristics of lifelong learning include: 1) Learning to Know, 2) Learning to Do, 3) Learning to Live Together, 4) Learning to Be (Figure 1.3).

Learning to Know requires lifelong learners to develop literacy and numeracy skills, along with a critical and innovative mindset. Beyond cognitive abilities, it also involves emotional and social qualities such as perseverance, curiosity, and collaboration, which help individuals adapt to the demands of the modern knowledge economy. Innovative libraries play a key role in supporting this by offering extensive digital and print resources, AI-driven content recommendations, and self-service learning platforms, enabling individuals to efficiently access, explore, and deepen their knowledge in a flexible and independent manner.

Learning to Do is directly linked to an individual's practical skills and abilities in their career, including the capacity to adapt to changing work environments and effectively apply and transform knowledge. This dimension primarily evaluates continuing professional development for adults in the workforce and students' work experience within formal education systems. Innovative libraries support this by providing research assistance, technology-enhanced learning environments, and digital literacy programs, equipping individuals with the skills needed to navigate the evolving job market and technological advancements effectively.

Learning to Live Together involves fostering respect, understanding, and concern for others, as well as an appreciation for their history and traditions. It emphasizes civic participation through activities such as volunteering, charitable giving, and involvement in community associations, promoting the achievement of common goals and the peaceful resolution of conflicts. Innovative libraries support this by serving as inclusive community spaces, offering civic engagement programs, volunteer opportunities, and knowledge-sharing events that encourage social cohesion, collaboration, and mutual respect among diverse populations.

Learning to Be highlights the importance of individuals engaging in sports, arts, and cultural activities while nurturing imagination, creativity, aesthetic awareness, physical well-being, and communication skills. This development is facilitated through various forms of mass media and interactive experiences. Innovative libraries support this by providing access to artistic, cultural, and personal enrichment programs, fostering intellectual and emotional growth while encouraging self-expression and lifelong personal development.



Figure 1.3 The four pillars of lifelong learning

Source: The ELLI Index – Europe, 2010

1.4.3 Definition of Management Strategy

Strategy is expressed as a series of continuous and conscious actions to achieve specific goals under specific conditions.

Management strategy is the dynamic management process of making decisions about the future direction of an organization and implementing those decisions. It is the decision-making and management part of an organization's overall development direction, objectives, tasks, and policies, as well as the allocation of resources in a certain period. In this study, management strategy is the strategy that innovative library managers use to foster lifelong learning.

1.5 Conceptual Framework

Based on a large number of literature and theories, this research summarizes and defines the connotation of core variables and the internal relationship between related variables. Based on the basis of previous research results, the theoretical model framework of this research is constructed through rigorous logical reasoning. Important sources of literature review on research on management strategies of the innovative library based on the concept of lifelong learning are as follows.

1.5.1 Management of the Innovative Library

The synthesis of the concept of innovative library management from:

1. Public Library Law of the People's Republic of China (Order of the President of the People's Republic of China, 2017);
2. The Public Library Assessment Indicators series of standards (WH/T70-2020);
3. Measures for the construction and management of urban study rooms in Wenzhou City (Office of the People's Government of Wenzhou City, 2020);
4. Measures for the construction and management of urban study rooms in Luoyang City's "Heluo Book Garden" (The Wenzhou Municipal People's Government Office, 2020);
5. A framework for strengthening school library capacity (Hay & Foley, 2009);
6. Association of College and Research Libraries (ACRL 2020 Strategic Plan, 2009);
7. Library of Congress Strategic Plan 2016 – 2020 (Library of Congress, 2016);
8. Information and Literature -Quality Assessment of the National Library (ISO 21248:2019);
9. Industrial Management and General Management (Fayol, 1916);
10. Many other related research literature resources.

Details of the concept of innovative library management are as follows:

1.5.1.1 Management work is the management operation of the innovative library and includes the following components: 1) Planning, 2) Organizing, 3) Human resourcing management, 4) Directing, 5) Coordinating, 6) Reporting, 7) Budgeting, 8) Information resource management.

1.5.1.2 Service work is the service operation of the innovative library and includes the following components: 1) Information service, 2) Research service, 3) Space service, and 4) Educational training.

1.5.2 Lifelong Learning

The characteristics of lifelong learning are informed by discussions in the following works: Lengrand's lifelong education theory (1975); Delors et al.'s report "Learning: The Treasure Within" to UNESCO (1996); Oldenburg's third space theory (1997); European Lifelong Learning Indicators (European Union, 2008); studies by Dymock (2009) and Chen (2016); the Baidu Encyclopedia of Lifelong Learning (2022); as well as many other literature resources.

However, by studying a large number of relevant mainstream theories and literature, the researcher selects the characteristics of lifelong learning presented by UNESCO (1996) and the European Union (2010) as the definition of lifelong learning for this research. The conceptual framework of lifelong learning is loosely based on the

recommendations by the UNESCO International Commission on Education and European Lifelong Learning Indicators of lifelong learning: learning to know (essentially school-based learning), learning to do (learning related to work and vocational skills), learning to live together (learning that relates to social cohesion and participation in communities) and Learning to Be (learning that relates to personal development and creativity) (Delors et al., 1996).

Lifelong learning mainly has the following four aspects:

- 1) Learning to Know.
- 2) Learning to Do.
- 3) Learning to Live Together.
- 4) Learning to live Be.

1.5.3 Strategy Formulation

The strategy formulation for the study, which adopted the concepts of Stueart & Moran (2007), Nugraha & Aldianto (2012), Oreski (2012), Sammut-Bonnici & Galea (2015), and Ye (2018) included the following steps:

- 1.5.3.1 SWOT analysis using PNI-modified.
- 1.5.3.2 TOWS Matrix analysis.
- 1.5.3.3 Developing management strategies.

1.5.4 Conceptual Framework Development

Through the analysis and summary of the above three parts of the theory, this research derived the first draft of research conceptual framework. Then, this first draft was verified by the experts. The final conceptual framework is shown in Figure 1.4

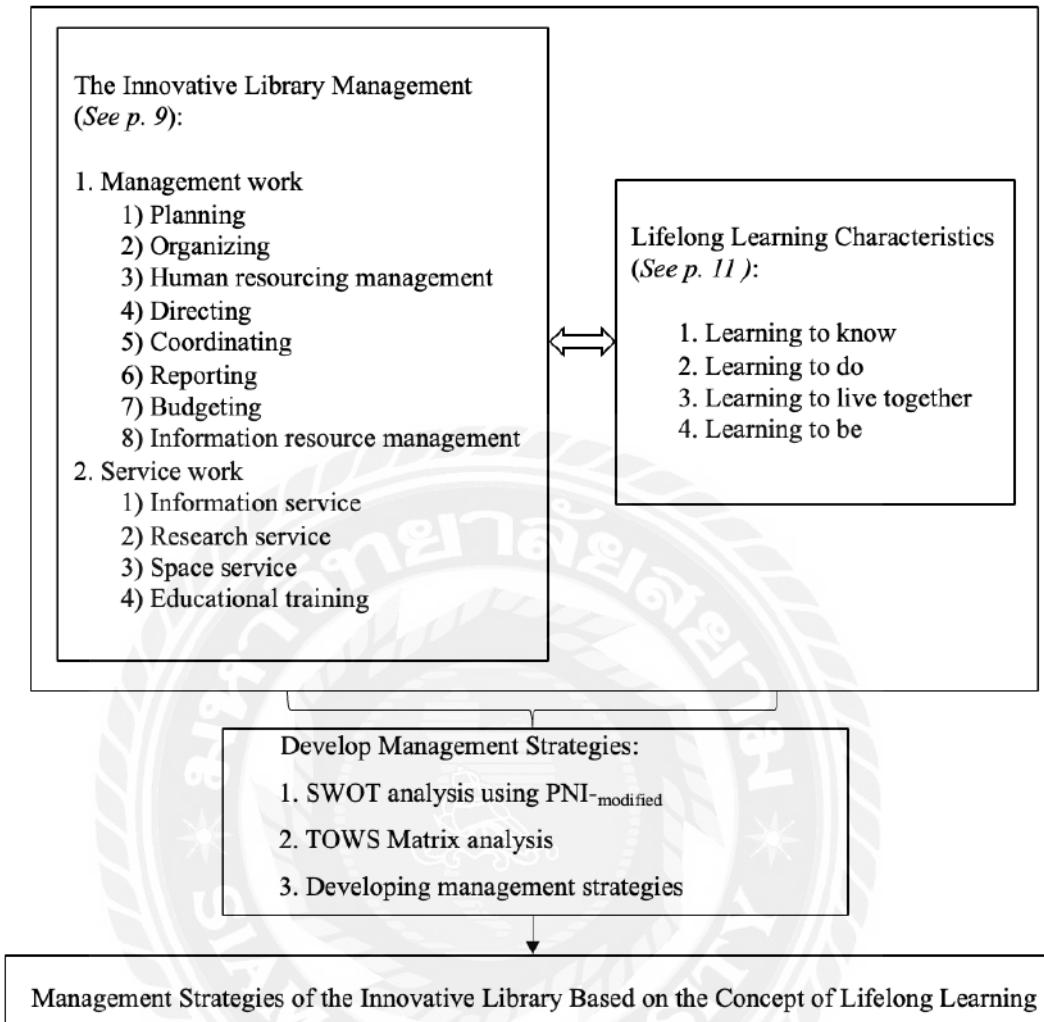


Figure 1.4 Conceptual framework

1.6 Scope of Research

In this study, the researcher aimed to develop the management strategies of the innovative library based on the concept of lifelong learning.

1.6.1 Scope of Conceptual Framework

1. Innovative library management can be summarized into the following two aspects:

- 1) Management Work
- 2) Service Work

The management work includes 1) Planning, 2) Organizing, 3) Human resource management, 4) Directing, 5) Coordinating, 6) Reporting, 7) Budgeting, 8) Information resource management.

The service work includes 1) Information service, 2) Research service, 3) Space service, 4) Educational training.

2. The characteristics of lifelong learning are summarized in the following four aspects:

- 1) Learning to Know.
- 2) Learning to Do.
- 3) Learning to Live Together.
- 4) Learning to live be.

3. The research process is divided into the following three steps:

- 1) SWOT analysis, 2) TOWS matrix, 3) Strategies development.

1.6.2 Scope of Research Subjects

The scope of this research is the Innovative Library of Luoyang City in central China.

Because there are a total of 205 innovative libraries in Luoyang City, this study used Krejcie-Morgan's sample calculation method to select 136 innovative libraries for research. The Excel random sampling tool was used to conduct simple random sampling to determine the research subjects. This study randomly selected innovative libraries in each district and county according to the proportion of the overall research subjects.

The research informants of each innovative library are:

- 1) 1 library manager (total 136).
- 2) 2 users (total 272).

Therefore, the total number of informants is 408 persons.

Scope of Time: from April 2024 to January 2025.

1.7 Keywords

Innovative library, lifelong learning, management strategy.

1.8 Research Benefits

Because the Chinese people are eager for lifelong learning, the Chinese government is also vigorously promoting constructing a lifelong learning society. Still, the government has not found appropriate specific measures. The innovative library management strategy based on the concept of lifelong learning proposed in this research provides innovative ideas for developing lifelong learning in China.

1.8.1 Innovative librarians can use library management strategies as a guide for library management based on the development concept of lifelong learning to promote and cultivate the improvement of users' comprehensive abilities and cultivate people towards sustainable lifelong learning.

1.8.2 Innovative library managers in other cities can refer to this management strategy. At present, innovative libraries in most cities in China are in the preliminary construction stage, and this strategy can provide management guidance for other developing cities.

1.8.3 Executives of similar educational institutions and other organizational leaders can refer to this management strategy and further develop suitable strategies based on actual conditions to comprehensively promote the development of a lifelong learning society and enhance the country's soft power.

1.8.4 The research idea is innovative, a development direction that organically combines culture and education. By analyzing the development status of innovative

libraries and lifelong learning in China, the research proposes the feasibility and advantages of innovative libraries as the development mode of lifelong learning under the background of rapid development of innovative libraries and slow development of lifelong education. The research can solve the problem of managing innovative libraries more effectively so that they can play a maximum role in the development of lifelong learning and promote the rapid development of lifelong education.

1.8.5 The study results have practical guiding value because this strategy can solve the problems governments face at the lowest cost. The innovative development model of lifelong learning proposed in this research is based on entirely using the existing social public cultural services to obtain the maximum social benefits with the least social input. The research results can provide management guidelines and a basis for the government to formulate policies in the next step.

1.9 Limitations of the Research

The study on management strategies for innovative libraries based on the concept of lifelong learning involves complex subject matter, broad geographic scope, diverse stakeholders, and a wide range of age groups. As a large-scale empirical study, while the sample selection provides a level of representation, there are several limitations to consider:

First, in terms of sample coverage, constraints related to time, resources, and funding limited the ability to conduct random sampling on a nationwide scale. As a result, the study's findings may not fully reflect the diversity of innovative libraries and lifelong learning initiatives across different regions.

Second, regarding survey content, lifelong learning is a broad and evolving concept, with no universally accepted framework among scholars. Questionnaire designs in existing research often follow different theoretical models, leading to variations in survey structure and interpretation. This study's findings, therefore, align with a specific research framework but may differ from those based on other methodologies.

Third, while innovative libraries are rapidly expanding, the development of lifelong education has not kept pace. A key limitation is the challenge of fully utilizing available social and educational resources, as well as the limited resource-sharing mechanisms among educational institutions, libraries, and other learning centers. This may hinder the efficiency of knowledge dissemination and restrict the potential reach of lifelong learning programs.

Fourth, innovative library management still follows a traditional cultural service model, focusing primarily on space management and lending services. The educational function of libraries remains underdeveloped within this framework, which may affect their contribution to lifelong learning and skill development. Future research should explore strategies to strengthen the educational role of innovative libraries while maintaining their community-oriented services.

Finally, differences in professional expertise and management approaches among personnel in educational and cultural sectors present another limitation. The lack of integrated and innovative management mechanisms may affect cross-sector collaboration and operational efficiency. Furthermore, some education-focused programs in innovative libraries remain basic and lack structured implementation frameworks. Future studies should investigate ways to enhance coordination, resource

integration, and program planning to maximize the impact of innovative libraries in lifelong learning.

1.10 Summary of Chapter One

Chapter One provides the foundational framework for this research, focusing on innovative library management within the context of lifelong learning. It emphasizes the importance of lifelong learning as a national strategy in China and highlights the role of innovative libraries in fostering its development. Introduced in Wenzhou in 2014, innovative libraries have rapidly expanded across the country, with over 5,000 established by 2022. These libraries utilize advanced technologies, such as artificial intelligence and RFID, to create self-service learning environments that integrate cultural and educational objectives. They serve as hubs for lifelong learning, promoting national reading initiatives and addressing the challenges posed by rapid knowledge growth and societal change.

The study focuses on Luoyang City's innovative libraries, examining their management strategies to support lifelong learning. It investigates the current and desired management situations, analyzes strengths, weaknesses, opportunities, and threats (SWOT), and develops tailored strategies to enhance library management. The research is grounded in theories of lifelong learning and library management, focusing on two key dimensions: management work, which encompasses planning, organizing, directing, and resource management, and service work, which includes providing information, research, and educational services. Guided by UNESCO's four pillars of lifelong learning—Learning to Know, Learning to Do, Learning to Live Together, and Learning to Be—the study outlines a conceptual framework for advancing library services.

Data were collected from 136 innovative libraries in Luoyang City between April and January 2025, involving input from library managers and users. The research highlights the potential benefits of innovative library strategies, such as enhancing users' skills, promoting lifelong learning, and providing cost-effective solutions. However, it also acknowledges significant challenges, including limited government support, traditional management practices, and the absence of integrated strategies.

In conclusion, Chapter One establishes the need for innovative library management strategies that align with China's lifelong learning goals. By addressing existing gaps and leveraging libraries' potential, the study aims to contribute to the development of a lifelong learning society, providing a roadmap for policymakers, educators, and library managers to optimize library services for a knowledge-driven future.

Chapter 2

Literature Review

The researcher studied theories, principles, concepts, and related studies in this research. Key concepts from various literatures were analyzed, synthesized, and summarized to define the conceptual framework of this study in terms of management strategies of the innovative library based on the concept of lifelong learning. Essentially, this chapter includes three main contents:

- 2.1: Concepts, theories, and research related to innovative library.
- 2.2: Concepts, theories, and research related to lifelong learning.
- 2.3: Concepts, theories, and research related to management strategy.

2.1 Concepts, Theories, and Research Related to Innovative Library

In the Internet age, people's access to knowledge and diversified demands for educational spaces have given birth to the emergence and development of educational sharing models and educational sharing spaces (Miao, 2021; Li, 2022). As an important type of shared educational space, the innovative library has gained considerable development in recent years with the support of national policies.

The innovative library is a self-service physical public library led by the government, allowing social forces to participate. It relies on public libraries at all levels, adopts automation equipment and radio frequency technology, and realizes integrated services (Figure 2.1).

Wenzhou is a vibrant southern city of China, the birthplace of the private economy, and the forefront of China's reform and opening up. The people here are highly innovative and are known as the Jews of the East. In April 2014, the city of Wenzhou opened China's first pilot innovative library.

Although the construction style and scale of each innovative library are different, the management goal of every city is the same: to get more people into the library to learn. With the help of advanced intelligent equipment, it can be unattended for 24 hours, breaking through traditional libraries' time and space limitations. Although innovative libraries can be unattended 24 hours a day with advanced technology and equipment, every innovative library will have some staff responsible for its management.



Figure 2.1 Innovative Library

The innovative library implements a general branch management model in which each branch library operates under the principles of unified leadership, hierarchical responsibility, and territorial management led by the central library. The central library coordinates and guides business operations, formulates and oversees the implementation of service standards, regularly develops plans for activities such as public welfare courses and database construction, inspects and maintains intelligent equipment, and organizes professional training for management personnel. Each branch library is responsible for daily management in accordance with these standards. The innovative librarian oversees the entire library's operations, which include: (1) internal management such as fixed asset management, human resources management, information resource management, and data statistics; and (2) service work such as information resource services, space management, and promotional activities. (The Wenzhou Municipal People's Government Office, 2020; The Luoyang Municipal People's Government Office, 2021; The Yangzhou Municipal People's Government Office, 2022).

The government's service content requirements for innovative libraries mainly include the following six aspects:

1. Information Services: Provide free reading, borrowing, returning, and other literature information services for citizens.
2. Space Service: Provide free space for citizens to study and cultural exchange.
3. Educational training: Conduct lectures, training, exhibitions, and others.
4. Collection Promotion: Promote and reveal the latest documents and special collections to the public through websites, Weibo, WeChat, and other channels.
5. Special group services: The rights of children, older people, people with disabilities, and other special groups to enjoy services are guaranteed.
6. Convenience service: Set up free water dispenser, first aid kit, etc.

2.1.1 Public Library Assessment Indicators

The International Organization for Standardization (ISO), a global authority on standards, has issued several guidelines for library performance and impact evaluation since 1974. The ISO 21248:2019 standard emphasizes assessing national library quality using user perception, combining performance and impact evaluations to enhance libraries' roles in knowledge dissemination and cultural preservation (ISO, 2019).

ISO 21248:2019 outlines 34 indicators across four key areas: collection, service, cultural role, and management. These include sub-indicators for cataloging, accessibility, cost-effectiveness, and user engagement. This framework addresses the needs of diverse user groups such as researchers, educators, and administrators (Zhang et al., 2022).

China's WH/T70-2020 standards, issued by the Ministry of Culture and Tourism, assess public libraries based on facilities, resources, staffing, services, and collaboration (Ministry of Culture and Tourism, PRC, 2020). Metrics include building areas, resource collections, and community outreach efforts, tailored to regional and local library levels. These standards aim to improve library services and ensure accountability in promoting lifelong learning and cultural engagement.

Together, ISO 21248 and WH/T70-2020 highlight the critical role of libraries in serving public education and preserving cultural heritage.

The ISO 21248:2019 standard and China's WH/T70-2020 guidelines provide comprehensive frameworks for evaluating public library performance and quality. ISO 21248:2019 focuses on user perception, combining performance and impact evaluations to improve libraries' roles in knowledge dissemination and cultural preservation. It outlines 34 indicators across four areas: collection, service, cultural role, and management. China's WH/T70-2020, developed by the Ministry of Culture and Tourism, assesses libraries at various levels based on facilities, resources, staffing, services, and collaboration. Together, these standards emphasize enhancing library services, fostering lifelong learning, and preserving cultural heritage.

2.1.2 Law of the People's Republic of China on Public Libraries

The Public Library Law of the People's Republic of China, enacted in 2017 and implemented on January 1, 2018, is the nation's first law dedicated to public libraries. It includes six chapters with 55 articles addressing establishment, operation, services, and legal responsibilities (Hu, 2018).

Public libraries are designated as free, public cultural facilities that collect, organize, and provide access to literature and information. Their offerings include books, digital resources, and social education services. Key features of the law include:

- 1. Government Responsibility:** Establishes the government's role in ensuring public library services' security and sustainability.
- 2. Social Participation:** Encourages private and social contributions to library construction, service, and management.
- 3. Digitalization and Modernization:** Promotes adopting new technologies and digitizing library services.
- 4. Standardization and Professionalization:** Sets standards for resource development, services, and library management.

The law has significantly impacted library development, including expanding service networks, enhancing governance through public participation, and fostering a

reading culture. Libraries must disclose service information, gather user feedback, and undergo regular assessments to ensure accountability and continuous improvement.

The Public Library Law of the People's Republic of China, enacted in 2017, outlines the establishment, operation, services, and responsibilities of public libraries. It emphasizes free public access, government accountability for library services, and encourages social participation in library development. The law promotes digitalization, modernization, and professionalization of library operations, while setting standards for resource development and management. Key outcomes include expanded service networks, improved governance through public engagement, and fostering a culture of reading and lifelong learning (Hu, 2018).

2.1.3 Local Laws and Regulations of Various Cities

With the rapid development of innovative libraries, several cities in China have introduced specific regulations for their management. For example, Wenzhou issued the "Urban Study Room Construction and Management Measures" in 2020, followed by Luoyang's "Heluo Book Garden Management Measures" in 2021 and Yangzhou's "Urban Study Room Regulations" in 2022. These regulations emphasize the unique role of innovative libraries as self-service public facilities that integrate advanced technologies and rely on public libraries at all levels.

The regulations commonly include four key areas:

1. **General Principles:** Define the mission, scope, and objectives of innovative libraries, emphasizing their role in promoting reading and lifelong learning.
2. **Planning and Construction:** Set guidelines for site selection and construction, requiring locations to align with urban planning, accessibility, and public utility standards.
3. **Operation and Management:** Outline management structures based on unified leadership and hierarchical responsibility, with the central library coordinating services across branches.
4. **Service Provision:** Require libraries to offer diverse services, including information, study spaces, educational activities, and accommodations for special groups.

Innovative libraries are designed to enhance access to library services by utilizing digital systems and automation while ensuring equitable and open access for all users. Figure 2.2 illustrates the management structure of these libraries.

The innovative library is a characteristic branch of the public library's central library, which is the main branch of the library service system. It follows the principles of unified leadership, hierarchical responsibility, and territorial management. It is included in the city's public library borrowing and returning service network and digital library service network (Figure 2.2).

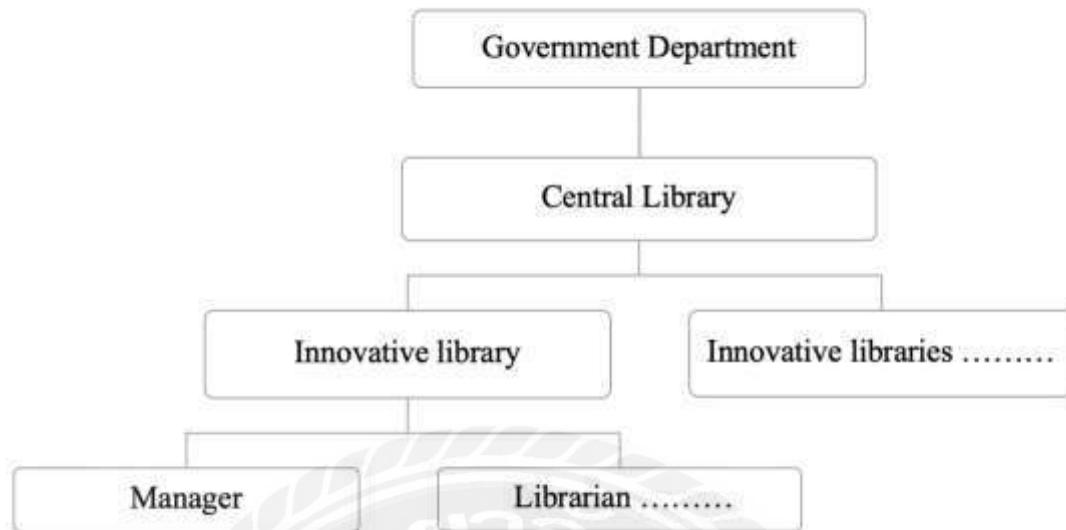


Figure 2.2 Innovative Library Management Architecture

The manager of the innovative library is responsible for the internal management work and external service of the entire library. The staff of the innovative library mainly performs the following duties under the requirements of the manager:

- (1) Be dignified, civilized, and enthusiastic, and provide readers with accurate and comprehensive information services;
- (2) Book shelving and un-shelving, shelving and sanitation of innovative libraries;
- (3) Guide readers to apply for library cards, use borrowing machines, and find books;
- (4) Accept daily inquiries from readers, quickly handle readers' complaints, and maintain order in the study room;
- (5) Manage and guide volunteers to carry out their work;
- (6) Organize and carry out reading promotion activities.

Service provision: It is clarified that innovative libraries should provide services to the public in accordance with the requirements of equality, freeness, openness, sharing, and convenience. The service mainly includes:

- (1). **Information Services**
Provide citizens with free reading, borrowing, returning and other literature information services.
- (2). **Space Service**
Provide free space for citizens to study and cultural exchange.
- (3). **Educational training**
Conduct lectures, training, exhibitions and others.
- (4). **Collection Promotion**
Promote and reveal the latest documents and special collections to the public through websites, Weibo, WeChat, and other channels.
- (5). **Special group services**

The rights of children, older people, people with disabilities, and other special groups to enjoy services are guaranteed.

(6). Convenience service

Set up free water dispenser, first aid kit, etc.

It also clarifies that urban bookstores should regularly announce the status of service development, listen to readers' opinions, establish complaint channels, improve feedback mechanisms, and accept social supervision.

Cities like Wenzhou, Luoyang, and Yangzhou have implemented specific regulations to manage innovative libraries, emphasizing their role as self-service public facilities integrated with advanced technologies. These regulations focus on four areas: defining objectives to promote reading and lifelong learning, setting guidelines for planning and construction, establishing a hierarchical management structure coordinated by central libraries, and ensuring diverse and equitable services. These measures aim to enhance access to library resources and foster community engagement.

2.1.4 Association of College and Research Libraries (ACRL) 2020 Strategic Plan

As of July 2009, the Association of College and Research Libraries (ACRL) is the largest American Library Association (ALA) division, the national organization of academic and research libraries and librarians. ACRL's activities are guided by the core values, vision, and goals set out in the strategic plan. ACRL's core purpose is to lead academic and research librarians and libraries in advancing learning and scholarship. ACRL advances its work by serving as a conduit between academic librarians, faculty, students, administrators, other information professionals, higher education organizations, federal, state, and local governments, and the larger society. It is the premier professional organization that promotes, supports, and advances the values of academic libraries in the higher education community.

ACRL and the American Library Association were formed to establish regular communication channels among librarians. ACRL members hold responsibilities in administration, public and information services, technology services, online services, library automation and networking, information literacy, collection development, rare books and special collections, nonprint media, and distributed education.

The article emphasizes that academic libraries are entering a century of change and that if we want to succeed, we must strengthen our collaboration and community relationships. Through its publications, professional development programs, public policy advocacy, and partnerships with higher education associations, ACRL will continue to improve the effectiveness of academic and research librarians to advance learning, teaching, and research in higher education. Scholarly communication, information literacy, and recruitment will be issues of particular concern to the industry and associations in the coming years. ACRL's initiatives in these areas will help academic librarians learn from each other, increase productivity, improve the quality of academic library services, and promote a better understanding of the library's role in academic and research institutions.

1. Strategy: Higher Education and Research

1.1 Goal: Learning

The Association of University and Research Libraries and its network of members are internationally recognized. Leaders build pupils' confidence and lifelong

learning skills, develop strategies for assessing learning outcomes, and create learning environments.

(1). Expand the area: obtain national and international recognition, use, and development of knowledge standards.

(2). Strengthen connections: Strengthening research connections with higher education institutions is important for the development of faculty and administrators.

(3). Improve members' ability to create and manage digital resources.

1.2 Objectives: Scholarship, research, and creative activities

The Association of College and Research Libraries and its member network is an organization that integrates content, tools, and services into workflows to advance scholars and creators at every stage. Strengthen the role of the Association of University and Research Libraries as a catalyst in supporting and transforming scholarly communication systems, improving the capabilities of members of the Association of College and Research Libraries.

2. Strategy: Specialization

2.1 Goal: Continuous Learning

The Association of College and Research Libraries provides ongoing learning opportunities to improve member performance and achieve goals.

(1). Expand the Association of College and Research Libraries' information-based learning programs and opportunity approaches.

(2). Increase learning opportunities that meet the diverse needs of our members based on research and best practice guidance.

(3). Increase flexibility for university and research library associations.

(4). Expand ongoing learning and research opportunities within the Academic Library Association to support library values.

(5). Maintain leadership in supporting research and publications.

2.2 Goal: Leadership

(1). Develop leadership among members of the Association of College and Research Libraries and increase opportunities for professional leadership development.

(2). Design and create tools for library association members.

(3). Increase awareness of the values of libraries and librarians through leadership.

(4). Increase support for academic library associations.

2.3 Target information technology

To make library science scholarship and research a leader in the use of scholarly information and technology in teaching and learning.

(1). Support and develop academic management and research.

(2). Build capabilities for cooperation with key technologies.

(3). Support members in researching and using new information technologies and service models in library education environments.

3. Strategy: Become an Association

3.1 Objective: Membership

The Association of College and Research Libraries must recruit new members while maintaining growth in its membership.

- (1). Expand membership engagement between existing members and professional groups.
- (2). Increase membership in the Association of Academic and Research Libraries.
- (3). Increase membership of marginalized ethnic and racial groups.
- (4). Increase the attractiveness of membership in university and research library associations.
- (5). Increase support for guide selection.
- (6). Support and promote research in the library work process.

3.2 Goals: Organizational efficiency and integrity

Academic and research library associations must have the financial resources, staff expertise, organizational structure, and strategic plans to develop and drive them.

- (1). Increase and diversify financial and human resources.
- (2). Increase mutually beneficial relationships within the association.
- (3). Supplement and improve the organizational structure of the association.

3.3 Goal: Sustainability

The Association of Academic and Research Libraries integrates sustainability into every aspect.

- (1). Expand commitment to green business operations.
- (2). Have a discussion about the importance of sustainable development.
- (3). Promote relationships and collaboration and provide opportunities for cross-functional work, research, and problem-solving for sustainable development within and outside the association.
- (4). Plan and conduct continuous research to promote the sustainable development of association members.
- (5). Engage with policy makers and non-academic organizations to promote sustainable development knowledge to the government and public academia.

2.1.5 School Library Construction to Develop Student Learning Abilities in the 21st Century

School library construction to develop student learning abilities in the 21st century (Hay & Foley, 2009) proposed a 10-element framework that can be used to improve school library capabilities and to evaluate and build library short- and long-term strategic plans. It mainly includes the following 10 factors:

1. Organizational clarity and consistency (Organizational clarity and consistency) in developing its vision, mission, priorities, and projects through a strategic planning process. This will help you feel confident about the future, ensuring that the future of the school library is built on the wider departmental and pedagogical direction and aligned with the district, community, and school needs and priorities are closely aligned.
2. Human Resource Management: The effectiveness of a school library should be supported by knowledgeable and committed library staff. The school library team must have sufficient skilled staff and volunteers to support programs, services, and administrative functions.
3. Facilities: An efficient school library is a multi-functional facility with flexible learning spaces that can be arranged, relocated, and rearranged to meet changing needs and priorities.

4. Information Resources: The capacity of an effective school library program depends on the selection and maintenance of a collection of print, multimedia, digital, and online resources to meet the diverse curricular and recreational needs of the community.

5. Cooperation network: Teaching cooperation is the core of an effective school library, including cooperation between teacher librarians and teachers, principals, students, and parents. It can also be used with other books, and the museum develops productive partnerships to support strategic goals. These collaborations may help build school libraries' resources, skills, expertise, and ability to support student learning.

6. Service provision: School library services should be dynamic and flexible. The emergence of any new courses or new technologies must be carefully served so that users feel relaxed when receiving services.

7. Management systems: Efficient school libraries are built by leveraging the potential of staff, resource management systems, content management systems, and financial and administrative systems.

8. Communication: An effective school library is able to use marketing strategies to promote various activities, including public relations. The library should be well-known and able to carry out activities in line with its objectives.

9. Continuous improvement and flexibility: An effective school library should assess, document, plan, and prioritize. Support the ongoing development of operations by improving assessments using evidence-based practices (EBP) and capacity-building approaches.

10. Fundraising: The school library needs to raise enough funds to meet the daily expenses and necessities required by the school. This includes the provision of high-quality collections, responsive services, and effective teaching programs. While they can be built using existing funds or by reallocating funds within the school or library budget, effective school libraries will also be proactive in acquiring additional funds.

2.1.6 Library of Congress Strategic Plan 2016 – 2020

The Library of Congress is the world's largest library and the United States national library. Since its establishment in 1800, its collection has totaled approximately 164 million volumes. In order to make the Library of Congress an influential and responsible leader, the Library of Congress took steps in fiscal year 2015 to adjust its organizational structure and operations, appoint two new senior management positions of Chief Information Officer (CIO) and Chief Operating Officer (COO), and the Network Management Committee actively promotes the realization of network Field vision, building digital collections and collecting resources with research value from collection resources, and five measures for strategic preservation of collection resources. In fiscal years 2016-2020, the Library of Congress will continue to serve members of Congress, U.S. citizens, and researchers around the world through rich collections, professional guidance, programs, and other resources, and help users make decisions and enhance well-being through diverse channels.

The vision of the Library of Congress from 2016 to 2020 is "The Library of Congress is the guardian of the intellectual record of the United States and the world, providing mankind with a ladder to the future while providing an indispensable service to the United States Congress." The mission is "to serve Congress, the federal government and the American people to provide rich, diverse, and sustainable

knowledge sources to meet the needs of users to obtain knowledge, discover inspiration, participate extensively, and obtain intellectual and creative development."

The core functions of the Library of Congress from 2016 to 2020 are the following seven:

1) Provide unique research and reference services to members of Congress, in-library readers, remote readers, and library users through other media channels.

2) Extensive collection, description, access, protection, and preservation of collections of knowledge in the form of physical and electronic resources, and provision of Library of Congress users with access to electronic resources from the collections of other institutions.

3) Support the statutory responsibilities of the U.S. Copyright Office, enforce copyright law, provide professional consultation on legal policy-related issues, and carry out public welfare services.

4) Motivating staff by creating a learning atmosphere, providing necessary technology, and adopting efficient processes.

5) Demonstrating the scope and value of library collections, staff expertise, and the resulting results through various public projects, publications, and online promotions Scholarship.

6) Conduct research and development in document preservation and conduct scientific and innovative experiments on materials and methods.

7) Demonstrate and demonstrate the best library and information science practices, becoming an industry model for libraries at home and abroad.

From 2016 to 2020, the Library of Congress developed a strategic operating plan that included the following seven strategies:

1) Service (service is the foundation): Provide authoritative, authentic, non-partisan scientific research, analysis, and intelligence services to Congress, the federal government, and the American people to the greatest extent possible.

2) Collection (the collection is the foundation): Extensive collection, description, preservation, knowledge information, and records of American creativity.

3) Innovation (innovation is hope): Within the framework of copyright law, modern copyright systems and related procedures should be jointly developed with the U.S. Copyright Office based on public goals.

4) Cooperation (cooperation is a win-win situation): Promote and support scientific research, innovation, and lifelong learning by expanding the scope of services and domestic and foreign cooperation.

5) Incentive mechanism (incentive mechanism is the means): stimulate employee potential and improve work performance.

6) Technology (technology is support): equipped with diversified High-tech facilities, using advanced means and technical standards.

7) Organizational structure (organizational structure is the guarantee): Through effective organization and management, the library continuously adapts to changes and adopts new methods to achieve collection development goals.

2.1.7 References Related to Management Theory

Fayol (1916) proposed that "operation" and "management" are two different concepts through research on enterprise activities. Management is included in the

operation. He believed that all activities (or functions) of an enterprise are divided into the following six categories:

- (1) Technical activities (production, processing, manufacturing);
- (2) Commercial activities (purchase, sale, exchange);
- (3) Financial activities (raising and effectively utilizing capital);
- (4) Security activities (protecting property and personnel);
- (5) Accounting activities (property inventory, balance sheet, costs and statistics, etc.);
- (6) Management activities (planning, organizing, commanding, coordinating, and controlling).

The first five activities are not responsible for formulating the overall business plan of the enterprise, establishing social organizations, and coordinating the forces and actions of all aspects, but they are all management activities. Henri Fayol extracted management activities from business activities, concentrated on research, and came up with a general definition of management, that is, "management is a universal independent activity, with its own set of knowledge system, composed of various Composed of various functions, management is a process of achieving goals by completing various functions."

Fayol (1916) believed that management activities have five functions: planning, organizing, directing, coordinating, and controlling, and analyzed them as follows:

(1) Planning: Henri Fayol emphasized planning as a critical management function, viewing it as forward-looking. Effective plans, according to Fayol, should incorporate input from lower-level managers and workers and exhibit four key characteristics: consistency, continuity, flexibility, and accuracy. Developing such plans requires regular forecasting (daily to long-term, up to ten years) and ongoing adjustments to adapt to changing circumstances over time.

(2) Organization: Henri Fayol defined organization as the provision of essential resources—raw materials, equipment, capital, and personnel—for business operations. He distinguished between material organizations (resources) and social organizations (people). Fayol introduced the concept of the social organism, emphasizing that organizations involving people differ fundamentally from those involving things.

(3) Command: Henri Fayol described commanding as the process of ensuring an organization function effectively, relying on managerial principles and worker qualities. Leaders should: 1) Understand their employees, 2) Remove incapable workers, 3) Be familiar with company-employee agreements, 4) Lead by example, 5) Conduct regular organizational inspections, 6) Collaborate with key assistants to unify leadership, 7) Focus on priorities, avoiding unnecessary details, 8) Foster unity, active engagement, innovation, and selflessness among employees.

(4) Coordination: Henri Fayol emphasized the importance of coordination in ensuring departments work in harmony. Each division must understand its role, collaborate effectively, and adjust plans as needed. Strengthening communication, such as holding weekly meetings with department leaders, is key to achieving this alignment.

(5) Control: Control ensures enterprise activities align with the plan by identifying and correcting errors to prevent recurrence. Effective control requires timeliness, appropriate rewards and punishments, and methods tailored to the nature of the work. Complex tasks may require specialized inspectors, who should be capable and impartial.

These five functions are closely linked to form a complete management process, providing a framework for the study of management theory. They are not unique privileges, nor are they the personal responsibilities of business managers or leaders. Rather, like the other five major activities of business operations, they are a kind of work distributed between leaders and members of the entire organization. The five functions of management proposed by Henri Fayol influenced management throughout the 20th century. Since then, many management scholars have continued to study this method, gradually forming management process schools or management function schools. Henri Fayol, therefore, became "The founder of a school of thought" (Business School, 2012).

Library management refers to the application of modern management principles and methods through planning, organizing, directing, and coordinating actions, the rational allocation and use of library resources, to give full play to its optimal efficiency, to achieve the predetermined goals, and complete the process of library tasks (Wang, 2003).

2.1.8 References Related to Library and Lifelong Learning

Deng (2023) pointed out that public libraries are the most distributed, the largest number, free of charge, and directly open to the whole public, including the elderly, children, migrant workers, low-income people, and other vulnerable groups, which have the inherent advantage of carrying out digital literacy education for the whole people.

Guo (2023) pointed out that information literacy education in some large public libraries in China mainly focuses on library services, digital resource promotion, and basic universal education for information-vulnerable groups.

Yan and Zhang (2022) constructed a service system for lifelong public education in public libraries.

Zhang (2020) proposed that information literacy education for the whole people is the main content of contemporary social education, which provides new opportunities for libraries to carry out social education.

Li (2022) proposed that the city's study should deepen cooperation and construction and improve innovative libraries' construction and service standards.

Zhang (2021) proposed the sustainable development strategy of an "Innovative library."

Li (2021) puts forward corresponding suggestions on the construction of social education courses in public libraries, with a view to promoting the sustainable development of library undertakings, helping the construction of national spiritual civilization, and improving the quality of the whole people.

Fu and Chen (2020) proposed that a long-term service mechanism should be formed by the brand building of an innovative library and promoting sustainable and benign development.

Abumandour (2019) highlighted the importance of public libraries and their services. In the meantime, it sheds light on specialized librarians' important and unique role. Briefly, public libraries, with all their resources, services, and expert librarians, could provide an exceptional e-learning experience to their community and greatly help educational institutions and organizations.

Liu (2014), based on the theory of social quality and service innovation and the principle of user orientation and continuity, constructed a theoretical framework of library service innovation from the aspects of service innovation quality improvement, path selection, and method system.

Yuan (2007) proposed the idea of establishing a lifelong education system and operation mode based on regional libraries by integrating relevant educational and cultural resources in the region on the basis and core of regional libraries.

Luo (2005) proposed that the formation of the lifelong education model made the public library the main front of lifelong education in society historically, and its educational function in the whole social education system has been improved in an unprecedented way. But for our country's public libraries to complete this glorious and arduous mission, much work still needs to be done.

Crick et al. (2004) reported the initial results of a study that was designed to develop and test an instrument that could identify the elements of an individual's capacity for lifelong learning.

Wang (2003) believed that the development of The Times is in urgent need of lifelong education, and lifelong education needs libraries. In order to meet the needs of lifelong education, all levels of libraries should actively participate in creating such a major educational environment.

With the continuous development of society, the update of knowledge is faster and faster, and people's desire for knowledge learning is becoming stronger and stronger. However, the development of lifelong learning hardware and software facilities that match people's strong will is slow. At present, China has no lifelong learning places that meet the requirements of the people in all aspects. With the continuous development of innovative libraries, the various advantages of lifelong learning are gradually highlighted, and various hard indicators can basically meet the requirements of people's continuous learning (Li, 2002). Of course, there are still many details in management that need to be adjusted.

The library is the treasure house of human wisdom. It was born with the function of national education, and with the rapid development of innovative libraries, the service dimension of public libraries is broader. It is not limited by time, space, age, and type of personnel. It is the best school for lifelong learning and the ideal carrier for lifelong education (Zhang, 2020).

Although the lifelong education system is not perfect at present, the innovative library is generally recognized as an excellent choice among all the institutions with educational attributes in China. It is the only institution that has all the conditions consistent with the requirements of lifelong education. Zheng (2022) found that all the characteristics of libraries have a positive effect on the effect of public, lifelong education through questionnaire surveys and modeling, and the library is a good carrier of lifelong education.

The public library has innate advantages in carrying out lifelong education. From its historical origin, the public library was set up for the whole people's education

at the beginning of its development in order to improve the quality of the whole people and enrich the spiritual needs of the people (Zhang, 2020). Now, the development direction of public libraries is more in line with the needs of lifelong education for all. With the strategy of China's cultural power, innovative libraries are developing rapidly all over the country. By 2021, the national average library building area per 10,000 people will reach 135.5 square meters, an increase of 73.3% over 2012. The per capita collection of public libraries was 0.89 volumes, up 74.5 percent from 2012. There were 746.14 million visits to public libraries nationwide, an increase of 71.8 percent over 2012 (Ministry of Culture and Tourism, 2022). Relying on its own advantages of intelligence, service equality, flexibility, and practicality, and not limited by time and space, the innovative library greatly expands the coverage of lifelong learning, truly realizes the lifelong, universal, extensive, and flexible use of lifelong learning, and enriches the spiritual life of the people.

Through a study of 745 questionnaires, Shen et al. (2018) found that the main factors restricting people's lifelong learning are learning costs, including capital and time costs. People's favorite place for lifelong learning is the library because the cost of learning in the library is zero, and there are flexible learning methods and non-time constraints. It is an excellent choice for lifelong learning.

We should give full play to the advantages of the library's educational function, occupy the commanding heights of lifelong education, and build the library into a lifelong learning school. The essence of lifelong learning is the personal information collection and information processing process. From this point of view, there are enough reasons for libraries to take on the responsibility of lifelong learning because libraries have the advantages of the following educational functions (Zhang, 2020; Zheng, 2022):

1. National character

The readers of the library are the objects of education, and the process of using the literature is the process of education. The library is open to all citizens on an equal basis, and there is no need for examinations to participate in the study, and knowledge can be obtained at will. Moreover, it is not restricted by time, space, and age and receives multi-directional education.

2. Lifelong

In the era of the knowledge economy, the knowledge renewal cycle is shortened. Everyone urgently needs new knowledge to supplement energy, and this "charging" should be accompanied by a lifetime. Obviously, no school can do this job. Only the library can take on this responsibility. As long as you need it, the library can "refuel" you at any time in your life, and it can be said that the library is a lifelong supply station for your personal sustainable development.

3. Comprehensibility of knowledge

A library is a treasure house of human knowledge. With rich resources, no institution can collect the literature of various disciplines like a library and form an orderly literature information source. The library's collection of documents has the characteristics of strong systematization, rich categories, and taking into account various classes, which have significant advantages. With a vibrant variety of books, newspapers, periodicals, and documents in the form of various carriers, the library provides the whole society with all ages, classes, and social members. It provides them with an all-around education in improving and cultivating science, culture, ideology,

and morality. This is also the material basis and working premise of lifelong education in the library.

4. Timeliness of information transmission

In the era of the knowledge economy marked by the high development of science and technology and the rapid growth of the total amount of human knowledge, the time factor is very important. School education emphasizes gradualism; knowledge updates are slow and often cannot catch up with the pace of social development. The library, however, updates knowledge and information every day and provides it directly to readers at any time, which ADAPTS to the characteristics of fast pace and high efficiency in contemporary society and has the advantage of fast information transmission.

5. Person-centered

The content, outline, and system of a certain specialty education have been stipulated before the beginning of the teaching process of school education, and the educator lacks autonomy in knowledge selection. Libraries, on the other hand, have no such restrictions. In the library, citizens can make choices according to their wishes, interests, and needs and obtain the essence of all aspects.

To sum up, some people call the library "all-round university" is well-deserved. In the competitive market economy, the library should be an ideal place for people to make up for the lack of scientific and cultural knowledge. It can be predicted that if the library can fully play a role in the function of lifelong education, then its contribution to society as a whole will be immeasurable. The government should be fully aware of this and adjust its cultural and educational management policies in a timely manner. Libraries should seize the opportunity to take the lead in the broad field of education and seize a commanding high point - lifelong learning school.

2.1.9 Summary of the Characteristics of Management of the Innovative Library

The researcher summarized the variables of innovative library management by studying the following theoretical concepts and related literature:

1. Public Library Law of the People's Republic of China (Order of the President of the People's Republic of China, 2017).
2. The Public Library Assessment Indicators series of standards (WH/T70-2020).
3. Measures for constructing and managing urban study rooms in Wenzhou City (Office of the People's Government of Wenzhou City, 2020).
4. Measures for constructing and managing urban study rooms in Luoyang City's "Heluo Book Garden" (Office of the People's Government of Luoyang City, 2021).
5. A framework for strengthening school library capacity (Hay & Foley, 2009).
6. Association of College and Research Libraries (ACRL) 2020 Strategic Plan, 2009.
7. Library of Congress Strategic Plan 2016 – 2020 (Library of Congress, 2016).
8. Information and Literature -Quality Assessment of the National Library (ISO 21248:2019).
9. Industrial Management and General Management (Fayol, 1916).

The management variables of the innovative library management are summarized as shown in Table 2.1:

Table 2.1 Summary of the Conceptual Framework for the Management of the Innovative Library

Management of the innovative library	Order of the President of the PRC, 2017	WH/T70-2020,2020	Office of the People's Government of Wenzhou City, 2020	Office of the People's Government of Luoyang City, 2021	Hay, L. & Foley, C., 2009	ACRL, 2009	Library of Congress, 2016	ISO 21248:2019).	Henri Fayol,1916
Investigate opinions and suggestions from all aspects		✓	✓	✓			✓	✓	✓
Record various data and analyze		✓						✓	✓
Funds to protect daily expenses	✓	✓	✓	✓	✓		✓	✓	
Activities and study funding	✓							✓	
Resource selection and allocation	✓	✓	✓	✓	✓		✓	✓	
Facility selection and configuration		✓	✓	✓	✓		✓	✓	
Use of information resources	✓	✓	✓	✓			✓	✓	
Maintenance of information resources	✓	✓	✓	✓				✓	
Investigation, collection and storage of information resources	✓	✓					✓	✓	
Record major historical events	✓						✓	✓	
Service Work									
Library reading and lending services	✓	✓	✓	✓			✓	✓	

Management of the innovative library	Order of the President of the PRC, 2017	WH/T70-2020,2020	Office of the People's Government of Wenzhou City, 2020	Office of the People's Government of Luoyang City, 2021	Hay, L. & Foley, C., 2009	ACRL, 2009	Library of Congress, 2016	ISO 21248:2019).	Henri Fayol,1916
Interlibrary reservation and loan services	✓	✓	✓	✓			✓	✓	
Digital resource query and download service		✓	✓	✓	✓	✓	✓	✓	
Question consultation and assistance with search, analysis and other services		✓	✓	✓			✓	✓	
Provide learning space	✓	✓	✓	✓				✓	
Publicity and broadcasting	✓	✓	✓	✓			✓	✓	
Activities and lectures	✓	✓	✓	✓			✓	✓	

Through the conceptual framework of innovative library management in the table above, the researcher summarized the concepts of each variable in library management. Innovative Library Management can be classified as follows:

Innovative Library Management means ensuring the efficient operation of self-service, technology-driven libraries that promote lifelong learning. It consists of **management work**, including planning, organizing, budgeting, and resource management, as well as **service work**, which covers information access, research support, space utilization, and educational programs. Unlike traditional libraries, innovative libraries leverage automation, AI, and decentralized models to provide flexible, user-friendly, and technology-enhanced learning environments.

Management Work

This refers to the strategic operation of the library, ensuring efficiency, accessibility, and adaptability. Key aspects include:

Planning: Unlike traditional libraries that follow a rigid bureaucratic framework, innovative libraries require agile planning that incorporates emerging digital trends, user needs, and flexible resource allocation.

Organizing: Traditional libraries follow hierarchical management, whereas innovative libraries adopt a decentralized networked model, allowing multiple branch locations to function independently while maintaining standardized operations.

Human Resource Management: Instead of relying on large in-person staff, innovative libraries use automated systems and digital management tools, requiring specialized training in AI-assisted library services.

Directing: Leadership in innovative libraries focuses on digital transformation and service efficiency, ensuring a seamless integration of smart technology into library operations.

Coordinating: These libraries establish partnerships beyond government institutions, collaborating with tech companies, universities, and digital education providers.

Reporting: Unlike traditional methods of manual tracking, innovative libraries utilize real-time data analytics and AI-generated reports to evaluate user engagement and optimize resources.

Budgeting: Innovative libraries require technology-focused financial planning, including allocating funds to smart infrastructure, AI learning tools, and automated system maintenance.

Information Resource Management: Traditional libraries rely on manual cataloging; however, innovative libraries use AI-powered indexing, cloud-based databases, and interactive e-learning platforms for efficient resource management.

Service Work

The service operation of innovative libraries goes beyond book lending and provides modernized, digital-first, and community-driven learning experiences. Key aspects include:

Information Service: While traditional libraries provide book lending and research assistance, innovative libraries enhance accessibility through 24/7 digital libraries, AI-powered reading recommendations, and remote access to online resources.

Research Service: Instead of just offering physical reference sections, innovative libraries support data-driven research tools, virtual research assistance, and AI-based knowledge hubs.

Space Service: Unlike traditional reading rooms, innovative libraries provide flexible, technology-enhanced environments that encourage interactive, collaborative learning, and immersive digital experiences through AR/VR technologies.

Educational Training: Traditional libraries focus on passive reading, while innovative libraries integrate interactive workshops, online webinars, coding boot camps, and AI-driven learning simulations.

2.2 Concepts, Theories and Research Related to Lifelong Learning

The term "lifelong education" came from the International Conference on the Promotion of Adult Education hosted by UNESCO in 1965. It was formally proposed by Paul Lengrand of France, Director of the Bureau of Adult Education of UNESCO. Lifelong education refers to the sum of all kinds of education that people receive in all stages of their lives, and it is a unified synthesis of different types of education that people receive.

In the 1990s, "lifelong learning" developed from lifelong education was widely recognized internationally. From early education to higher education, from learning

society to lifelong learning, theory and practice have gained new development (Laal & Salamati, 2012).

In November 1994, the First World Conference on Lifelong Learning in Rome, Italy, introduced and formally established the concept of lifelong learning on an international scale. The European Association for the Promotion of Lifelong Learning defined lifelong learning as essential for 21st-century survival, emphasizing its role in unlocking human potential and enabling individuals to learn creatively and joyfully (Longworth, 2019).

Since the 21st century, lifelong learning has become one of the world's most widely shared educational policy objectives, and it has also become a norm of educational policymaking. Lifelong education focuses on the government's supply side, while lifelong learning focuses on individual learners (Billett, 2010). At present, lifelong learning has become a globally recognized social development concept that helps achieve sustainable personal development and promotes the sustainable development of society, the economy, and technology.

The concept of lifelong learning now guides education reform globally. UNESCO's **Education 2030 Action Framework** emphasizes inclusive and equitable quality education, ensuring lifelong learning opportunities for all, with a focus on gender equality and disadvantaged groups. The "one-time learning era" has ended, as continuous education and independent learning have become essential for modern life and work, evolving from a utilitarian tool to a survival necessity (Li & Di, 2017).

According to a survey conducted by the UNESCO Bangkok Office (2016), "all kinds of lifelong learning activities contribute to the improvement of citizens' literacy, life skills, and vocational abilities, and the seven Asia-Pacific countries attach great importance to formal education for adolescents, but pay insufficient attention to informal and informal learning for adults."

The Chinese government prioritizes lifelong learning and building a learning society. The **Education Law of the People's Republic of China** (revised in 2015) promotes recognizing diverse learning outcomes and lifelong learning for all. The **China Education Modernization 2035** plan and the **14th Five-Year Plan** underscore the need for a comprehensive education system supporting lifelong learning. President Xi Jinping's 2022 report to the **20th National Congress** emphasized digitalizing education and elevating lifelong learning as a national strategic priority. Lifelong learning is viewed as both a necessity and a right, essential for personal and social development (Zhang & Tang, 2021).

Shen et al. (2018) found that over 90% of citizens in western China are eager to pursue lifelong learning for career advancement and salary growth, but adequate safeguards are lacking. Despite government emphasis at major conferences, lifelong education in China is undervalued and insufficiently understood. Drawing on the European lifelong learning index, Zheng and Yang (2015) noted that China overemphasizes formal education while neglecting vocational skills, social harmony, and personal development. Additionally, lifelong education progress is hindered by the lack of legislative support, institutional frameworks, and resource-sharing mechanisms. Innovative strategies are urgently needed to address these gaps (Shen et al., 2018).

2.2.1 Third Space Theory

American sociologist Ray Oldenburg (1997) first put forward the concept of "third space" in his masterpiece "The Great, Good Place," thinking that "third space" refers to the third place besides the home and office, and pointed out the "third space" is of great significance to citizens, society, democratic politics, and citizen participation. It has the characteristics of openness, symbolism, and generation (Elmborg, 2011).

The community library is a typical public reading space in the "third space," an essential facility that enables people to obtain information reasonably and easily and a meeting place for community residents (Kelly, 2014). An important factor in the success of community libraries lies in their "community vision" (McNicol, 2006). By providing local residents with "maker space" (Slatter & Howard, 2013), knowledge and information (Baba & Abrizah, 2018), social education (Perryman & Jeng, 2020) and other services, community cohesion can be enhanced, social inequality can be improved (Mnkeni-Saurombe & Zimu, 2015), and the gap between urban and rural communities can be narrowed (Singh et al., 2022). The main characteristics of the third place are the following:

- Free or inexpensive;
- Food and drink, while not essential, are important;
- Highly accessible: proximate to many (walking distance);
- Involve regulars – those who habitually congregate there;
- Welcoming and comfortable;
- Both new friends and old ones should be found there (Oldenburg, 1997).

The 75th InJA Conference held in Turin, Italy, focused on the theme of "Library as a Space and Place" and discussed how to construct and use the third space of the library. Montgomery and Miller (2011) believed that the concept of the third space of the library is closely related to the library as a place. They believed that the third space of the library is logical because users can have social interaction in the library and protect their privacy at the same time. The third space theory clarifies libraries' social status and provides a theoretical basis for libraries to carry out lifelong education work.

2.2.2 Lifelong Education Theory

At the Third International Conference on Adult Education held by the United Nations Educational, Scientific, and Cultural Organization, Lengrand (1965) first formally proposed the concept of "lifelong education". Later, in 1975, he published the book *Introduction to Lifelong Education*, which systematically and comprehensively discussed the theory of lifelong education. Since then, the theory of lifelong education has been developed and spread widely worldwide. Lengrand made it clear that lifelong education is all the meanings contained in the word education, including all aspects and scopes of education, including the continuous development from the beginning to the end-of-life movement, as well as the close and organic internal connection between each point in the development process of education and successive stages. The basic implementation principles of lifelong education are lifelong, universal, extensive, flexible, and practical.

1) Lifelong

This is the greatest characteristic of lifelong education. It breaks through the framework of formal schools and regards education as a continuous learning process in one's life, as the sum of all kinds of training received by people in their life, and realizes

the unity of the whole educational process from pre-school to old age. It includes both formal and informal education. It covers all stages and forms of the education system.

2) Universal

The universality of lifelong education ensures access for all, regardless of age, gender, wealth, or race. UNESCO researcher Darbe highlighted its democratizing nature, opposing elitism and advocating equal educational opportunities for everyone. In modern society, lifelong education is essential for survival and development, reflecting the growing need for continuous learning to adapt to evolving challenges.

3) Extensive

Lifelong education includes family education, school education, and social education. It encompasses, so to speak, all stages of human life, all times, all places, all occasions, and all aspects of education. Lifelong education has expanded the world of learning and injected new vitality into the whole educational cause.

4) Flexible and Practical

Modern life has flexibility, which shows that anyone who needs to learn can receive any form of education anytime and anywhere. The individual decides the time, place, content, and study method. People can choose the most suitable study according to their own characteristics and needs.

2.2.3 Learning: The Treasure Within - Report to UNESCO of the International Commission on Education for the Twenty-First Century

In 1996, UNESCO and OECD released the Delors Report and the Comprehensive Lifelong Learning Report, which advanced lifelong learning globally by integrating it into education and national policies. These reports emphasized education as a crucial tool for addressing future challenges, fostering peace, freedom, and social justice, and supporting the sustainable development of individuals and society.

The Delors Report 1996, entitled Learning: The treasure within (Delors et al. 1996), saw learning throughout life as the 'heartbeat' of a society. It also saw lifelong learning as a principle that rests on four pillars – learning to know, learning to do, learning to live together, and learning to be – and envisaged a learning society in which everyone can learn according to their individual needs and interests, anywhere and anytime in an unrestricted, flexible and constructive way (UNESCO Institute for Lifelong Learning Technical Note).

This concept is the same as the original intention of the innovative library, which is to bring resources to the closest place to the people so that people can learn anytime, anywhere, and in any way.

2.2.4 European Lifelong Learning Indicators (ELLI)

In 2006, the Canada Council on Learning (CCL) organized experts to develop the first lifelong learning measurement tool - the "Composite Learning Index" (CLI), which became the world's most important statistical indicator. The first valuable measurement tool for evaluating lifelong learning.

Lifelong learning builds on lifelong education, with both being inseparable and complementary (Wu & Deng, 2022). Lifelong education encompasses all learning activities throughout life, while lifelong learning integrates these stages into a continuous process. UNESCO views them as two sides of the same coin (He, 2023). To enhance visibility, transparency, and comparability, the European Union developed the

European Lifelong Learning Indicator System in 2008, inspired by Canada's comprehensive learning index.

The launch of the first edition of ELLI in 2010 coincides with a period of worldwide economic crises that have had the most substantial impact on Europe (Gamble, 2009). These two factors have led the European Union to focus its policy efforts on education and innovation as the key drivers to remaining competitive. With fewer jobs and less money in government coffers to support the public sector, education, and welfare, the European Union has launched EU 2020, a political initiative to revitalize Europe. The new initiative states the need for "smart, sustainable, and inclusive growth" (European Council, 2010).

The European Lifelong Learning Index System measures lifelong learning development across countries using four dimensions: learning to be, learning to do, learning to know, and learning to live together (Zhang & Wu, 2012). These dimensions evaluate formal education (learning to know), vocational skills (learning to do), interpersonal character and social attitudes (learning to live together), and informal learning for personal growth (learning to be) (Yang & Yu, 2013).

Investment in education benefits not only individual development but also social and economic development, such as the growth of economic wealth, the improvement of citizens' health levels, the decrease of crime rate, and the improvement of environmental quality. Therefore, combining the latest statistical data from the social and economic benefits dimension to reflect the implementation effect of lifelong learning in EU countries, the combination of learning and social welfare is undoubtedly a major innovation of the European lifelong learning index system. In this index system, lifelong learning mainly includes economic benefits and social benefits (Figure 2.3).



Figure 2.3 The Four Pillars of Lifelong Learning
Source: The ELLI Index – Europe, 2010

The European Lifelong Learning Indicator System helps EU member states monitor lifelong learning implementation and assess its socio-economic benefits. It provides measurement dimensions, indicators, and scales to guide data collection and analysis, supporting citizens, employers, and policymakers in developing lifelong learning strategies. The system is people-centered, focusing on individual citizens and reflecting the comprehensiveness, development, and specificity of lifelong learning (Zhang & Wu, 2012).

2.2.5 References Related to Lifelong Learning

At present, there are many studies on lifelong learning, and the articles are mainly published in journals in the fields of adult education and continuing education. The frequently cited literature mainly focuses on the theoretical and policy analysis of lifelong education system research. Experts and scholars have done less research on specific implementation strategies for lifelong learning and even less research on management strategies for libraries to promote lifelong learning, and most of them focus on theoretical discussions.

Lifelong learning spans all life stages and education systems, integrating various teaching and independent learning methods (Rogers, 2003). While lifelong education focuses on improving the education system, lifelong learning emphasizes individual growth, autonomy, and the rights of learners (Zhu & Gao, 2014). It encompasses knowledge acquisition, personal growth, economic and social well-being, democratic development, and cultural identity. Lifelong learning should prioritize learners' needs and autonomy (Dymock, 2009). Fryer (2010) emphasized that lifelong learning fosters modern, humane, and democratic societies and can also serve as a means of pleasure and self-fulfilment.

Yu et al. (2016) conducted a comprehensive investigation and in-depth analysis of the lifelong learning needs of Guangzhou residents, including the aspects of learning cost and effect, learning purpose and demand, learning environment, and influencing factors. Jin (2000) proposed building a public library service system in Shanghai that includes education for all and lifelong education. Zheng et al. (2014) constructed a lifelong learning literacy model with five elements: learning preparation and learning process management. They conducted a large-scale investigation and research on adults in Beijing. Tang (2014) investigated the status quo of lifelong learning of Shanghai citizens from seven aspects, including the proportion, time, funds, place, content, and way of learning participation, and its index design was more systematic. Wu and Huang (2014) pointed out that China's lifelong education legislation needs to protect citizens' lifelong learning rights, adhere to the government as the leading, learners as the main body, lifelong education funds included in the national education budget, and other issues. Barros (2012) intends to question this new policy direction, which is associated with a conceptual and methodological shift in adult education practices, using the prism of a critical sociology of education.

Longworth (2003) proposed that a lot of excellent work has been carried out since lifelong learning was valued. If the concept of cradle-to-grave learning is to become one of lifelong learning, significant changes are still needed in some areas. Drawing on his unique position of consultation with schools, universities, local government, and global authorities, he presents the latest developments in lifelong learning through a comprehensive survey of lifelong learning principles, including examples from around the world. Lengrand (1975) shed light on the varying

significance of the concept of lifelong education to show what forces militate in its favor, explore its dimensions, and define its impact and consequences for the educational effort taken as a whole.

Chen et al. (2022) pointed out that it is also necessary to take institutional system construction as the starting point and promote the lifelong learning strategy and education modernization through the reform of education concepts, teaching modes, and supply modes. Wu et al. (2020) defined the essential functions and extended functions of regional lifelong learning credit banks and built the business model of regional lifelong learning credit banks. UNESCO and UNICEF, the World Bank, UNFPA, UNDP, UN Women, and UNHCR jointly organized the 2015 World Education Forum in Incheon, South Korea, from 19 to 22 May 2015. The conference adopted the Incheon Education Declaration 2030, which sets a new vision for education for the next 15 years under the theme: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.

Chen (2016) argued that lifelong learning enables individuals to explore their potential through experiences and behaviors at any time and place. Governments, society, and private sectors should provide resources and facilities to foster lifelong learning as an independent, creative process essential for adapting to a rapidly changing world. Lifelong learning has three core characteristics: **Social**: Lifelong learning systems should ensure equity by being accessible to everyone. Fairness in learning opportunities promotes cultural knowledge, skills development, and a sustainable learning ecosystem within modern society. **Personally Motivated**: Individuals are at the center of lifelong learning, which connects them with society and their environment. It is a social activity that enhances cultural literacy, social awareness, and professional skills. **Lifelong**: Learning spans a person's entire life. Continuous education allows individuals to acquire modern technologies and skills tailored to their needs and hobbies, enabling personal and societal development while forming a comprehensive learning society. This approach emphasizes learning as a tool for personal growth and societal advancement through equitable access and continuous engagement.

Erdoan and Arsal (2016) conducted a general review of the literature and created a pool of scale items. The structural scales of the factors were argued through exploratory factor analysis. At the end of the findings, 'willingness to learn' and 'openness to improvement' were found to be the most influential factors in lifelong learning. The structural validity and reliability of the scale were examined through a validated factor analysis, and the results of the study showed that the scale has sufficient validity and reliability to measure lifelong learning trends. Further conceptions and characteristic features of lifelong learning have also been proposed.

Lifelong learning embodies the concept of continuous learning, which runs throughout a person's life and consists of multiple stages of continuous learning processes in the learner's life. Independent lifelong learning activities are selected, planned, and implemented in any situation with self-centeredness and independent learning management. For the analysis of individual learning, we should focus on the results and the corresponding learning process. The progress of lifelong learning depends on the social and personal dimensions of the individual learning process, that is, the regulation of individual self-learning and the interaction with other individuals in society during the learning process. It is not advisable to analyze learning literacy apart from the learning process and context (Zheng et al., 2013).

Collins (2009) emphasized that lifelong learning is (a) continuous (never stops); (b) supported (not done alone); (c) motivating and empowering (being self-directed and active, not passive); (d) integrating knowledge, values, skills, and understandings (which are beyond what we know); (e) span a lifetime (from our first breath to our last); (f) Application (not just for knowledge); (g) Incorporation of confidence, creativity and enjoyment (it is a positive, fulfilling experience); (h) Includes all roles, situations and circumstances (it applies not just to our chosen careers but to our entire lives).

Leong (2008) suggested the features of LLL should include Openness, that is, available for all; Continuity, which emphasizes linkages between various educational activities; Integration, that is, consists of all education activities in the life-span; Flexibility: in objectives, methodologies, time, place, content, and processes; Appropriateness: of the content being related to the learner's life and/or work.

A learning society has six characteristics: lifelong, openness, innovation, mass, development, and autonomy. Only by establishing a learning library and extending and expanding its service scope, objects, functions, means, and many other aspects can we meet the challenges of the information age. The library has become the ideal place for lifelong learning with its rich collections, online resources, and modern service methods. Libraries have a special role in implementing universal learning lifelong learning, disseminating cultural knowledge, and improving the quality of the entire population. They are institutions, classrooms, and positions for lifelong learning for citizens and are of special significance to human progress (Qu, 2004).

2.2.6 Summary of the Characteristics of Lifelong Learning

Lifelong learning means the continuous, voluntary, and self-motivated pursuit of knowledge by people for personal or professional reasons throughout their lives.

The government and society should provide good learning facilities and resources to promote the comprehensive development of its citizens. These resources should encourage lifelong learning as an independent and creative learning experience that helps learners survive in a rapidly changing society. The European Lifelong Learning Indicators divide the "structural" level into "supply, participation, and results," indicating that the realization of lifelong learning and a learning society relies on the government and society to provide various infrastructure, opportunities, and conditions necessary for everyone to learn (Zheng & Yang, 2015).

According to UNESCO, lifelong education is based on four pillars: learning to know, do, live together, and be. These four pillars are the "pillars of knowledge" in everyone's life and the "compass" for lifelong learning development. The European lifelong learning indicator system combines the social environment and lifelong learning policy background of the European Union. It takes the four pillars of learning to know, learning to do, learning to live together, and learning to be as its measurement dimension to comprehensively reflect the conditions, behaviors, and results of the development of lifelong learning in various countries.

By studying a large number of relevant mainstream theories and literature, the researcher also selected the characteristics of lifelong learning presented by UNESCO (1996) and the European Union (2010) in the following four aspects:

Learning to Know requires lifelong learners to develop literacy and numeracy skills, along with a critical and innovative mindset. Beyond cognitive abilities, it also involves emotional and social qualities such as perseverance, curiosity, and

collaboration, which help individuals adapt to the demands of the modern knowledge economy. Innovative libraries play a key role in supporting this by offering extensive digital and print resources, AI-driven content recommendations, and self-service learning platforms, enabling individuals to efficiently access, explore, and deepen their knowledge in a flexible and independent manner.

Learning to Do is directly linked to an individual's practical skills and abilities in their career, including the capacity to adapt to changing work environments and effectively apply and transform knowledge. This dimension primarily evaluates continuing professional development for adults in the workforce and students' work experience within formal education systems. Innovative libraries support this by providing research assistance, technology-enhanced learning environments, and digital literacy programs, equipping individuals with the skills needed to navigate the evolving job market and technological advancements effectively.

Learning to Live Together involves fostering respect, understanding, and concern for others, as well as an appreciation for their history and traditions. It emphasizes civic participation through activities such as volunteering, charitable giving, and involvement in community associations, promoting the achievement of common goals and the peaceful resolution of conflicts. Innovative libraries support this by serving as inclusive community spaces, offering civic engagement programs, volunteer opportunities, and knowledge-sharing events that encourage social cohesion, collaboration, and mutual respect among diverse populations.

Learning to Be highlights the importance of individuals engaging in sports, arts, and cultural activities while nurturing imagination, creativity, aesthetic awareness, physical well-being, and communication skills. This development is facilitated through various forms of mass media and interactive experiences. Innovative libraries support this by providing access to artistic, cultural, and personal enrichment programs, fostering intellectual and emotional growth while encouraging self-expression and lifelong personal development.

2.3 Concepts, Theories and Research Related to Management Strategy

2.3.1 Strategy

The term "strategy" was first seen in China in the book "Strategy" written by Sima Biao, a historian of the Western Jin Dynasty, and later appeared frequently in historical books such as "Three Kingdoms." These classical military works have not yet clearly separated strategy from traditional military science. Their core meaning is similar to modern strategy and sometimes includes political diplomatic strategies and tactics. In the West, the English word "strategy" comes from the Greek "strategia". As early as AD 84-96, the ancient Roman military theorist S.J. Frontinus wrote the book "Strategy".

The word strategy has a far greater meaning in administrative management than in its military meaning. "For the military, strategy is simply the science and art of utilizing a nation's armed forces to achieve the goals determined by its leaders." Socrates of ancient Greece compared the activities of merchants to those of generals. Comparatively, it is pointed out that in every task, the person who performs the task correctly must make plans and mobilize resources to achieve the goal (Mintzberg & Quinn, 1995).

Strategy is the method by which an organization achieves its goals (Certo & Peter, 1995), aligning with Mintzberg and Quinn's (1995) view of strategy as decision-making and operational methods to reach intended objectives. Porter (1996) highlights that strategy involves conducting activities distinct from competitors and adapting to market changes to sustain a competitive advantage. Wang (2000) defines strategy as the guidelines, policies, and methods that help enterprises set goals, allocate resources, and organize activities based on their environment and capabilities. Li et al. (2001) describe strategy as a deliberate, continuous plan of actions under specific conditions to achieve goals. Mintzberg's (1987) 5P Model offers a comprehensive framework for understanding strategy through five distinct lenses: (1) **Plan**, as a deliberate and purposeful course of action developed in advance; (2) **Ploy**, as a tactical move to outmaneuver competitors; (3) **Pattern**, as a consistent stream of behavior that reveals an emergent strategy over time; (4) **Position**, as the organization's place within the external environment relative to competitors; and (5) **Perspective**, as the ingrained worldview or cultural mindset that shapes how strategy is formed and interpreted. Together, these five Ps provide a holistic and multi-dimensional view of strategy that captures both its formal planning aspects and its implicit, evolving nature.

2.3.2 Management Strategy

In recent years, the evolution of the concept of strategy has given rise to a new school of management and a new approach to organizational guidance called "strategic management." Management strategy basically means adapting an organization's resources and skills to the changing environment, exploiting its opportunities, and assessing risks against goals and objectives. It addresses the organization's direction, its drivers, and other key factors that help it determine its future products, services, and markets (Mintzberg & Quinn, 1995). Management is defined as the administrative decisions that determine operations and organizations to achieve the long-term advantage of the organization. Management strategy is systematic management that requires the leader's vision and relies on step-by-step planning, which, after evaluation and determination, is suitable for the organization and can be implemented. Management strategy is a method that helps executives determine the direction of an organization, have an overall analysis of the internal and external environment, and determine strategies suitable for the organization. Management strategy is the dynamic management process of making decisions about the future direction of an organization and implementing those decisions (Yüksel & Dagdeviren, 2007).

In this research, management strategy is the strategy that innovative library managers use to foster lifelong learning.

2.3.3 Management Strategy Process

Different understandings of management strategy and factors affecting management strategy have formed several schools of strategic management. Among them, there are three traditional strategic management schools with significant influence, namely the design school, the planning school, and the positioning school (Mintzberg et al., 1998).

Steiner proposed a strategic planning model consisting of three stages: "defining prerequisites," "making plans," and "execution and inspection" in his book "Top-level Strategic Planning" in 1969. This is a strategic hierarchical system planned according to cycles. At the top are a five-year, long-term first-term plan and medium-

term strategic and annual business plans. On this basis, Nutt and Barkov proposed a management process model led by strategic management groups for the public sector. The model describes a six-stage strategic planning process: describe the historical background, conduct a situation assessment, establish an issue agenda, formulate alternative strategies, assess feasibility, and implement the strategy (Fang & Luo, 2011).

Certo and Peter (1995) described the strategic management process as analyzing the internal and external environment to assess weaknesses, strengths, opportunities, and threats. Establishes organizational direction, whether it is vision, mission, goals, or overall goals. Strategies are then formulated as guidelines or good ways of working to do your best to achieve specified results. The strategy is then put into practice so that work can be carried out according to the established plan—finally, strategic control, monitoring, and evaluation.

Fred R. David argued that corporate strategic management should take the form of a syllogism, consisting of three key stages: strategy formulation, strategy implementation, and strategy evaluation (David, 2009). Strategy formulation involves determining the enterprise's mission, identifying external opportunities and internal strengths and weaknesses, establishing long-term objectives, formulating alternative strategies, and selecting specific strategies for implementation (David, 2009). Strategy implementation requires setting annual goals, developing policies, motivating employees, and allocating resources to execute the chosen strategy (David, 2009). Finally, strategic evaluation means reassessing internal and external factors, measuring performance, and taking corrective action when necessary (David, 2009). In the 1990s, increasing environmental uncertainty highlighted the importance of strategy execution alongside strategy formulation. Kaplan and Norton's strategic management process model, based on the balanced scorecard, became a key framework. This six-stage cycle includes strategy development, interpretation, organizational collaboration, planning and operation, monitoring and learning, and testing and adjustment. Kaplan and Norton's contributions are threefold (Li, 2012): 1) Strategic Communication: Tools like the strategy map and balanced scorecard transform abstract strategies into visual, actionable charts, 2) Organizational Synergy: High-level goals are translated into specific departmental and individual objectives, ensuring cohesive execution, 3) Integration of Strategy and Operations: Links strategy with day-to-day operations, addressing the traditional disconnect in strategic management.

Fang and Luo (2011) used the balanced scorecard as a management tool to propose an improved strategic management process. This model consists of four parts: planning, collaboration, action, and control. Its main line is a step-by-step strategic management process, including six links: strategy development, interpretation, collaboration, linkage, execution, and measurement.

2.3.4 SWOT Analysis

The design school of strategic management views strategy as aligning a company's strengths with external opportunities through a leader-driven, informal visioning process. This school introduced the SWOT model, which analyzes a company's strengths, weaknesses, opportunities, and threats (Andrews, 1971). Andrews defined strategy as matching what a company can do (opportunities and threats) with what it might do (strengths and weaknesses).

In the 1980s, Heinz Weihrich advanced SWOT by developing the **TOWS analysis** method, further enhancing strategic decision-making (Zade, 2016). SWOT remains one of the most widely used management tools for strategy creation (Kurttila et al., 2000).

Strategic Analysis is an important initial process of strategic management, aiming to formulate strategies suitable for the organization. This is to analyze the strengths and weaknesses of the organization through environmental assessment within the organization. Analyze the organization's opportunities and threats by evaluating the organization's external environment. This consideration is called a SWOT analysis, and Details are as follows (Oreski, 2012):

1. Strengths refer to the outstanding characteristics of each functional operation within an organization and are factors that contribute to the success of the organization.
2. Weakness refers to the inability of the organization's operations to perform well, which is an obstacle to the organization's success and requires solutions to the weaknesses that arise within the organization.
3. Opportunities refer to operations that are beneficial to the organization and are caused by the environment outside the organization.
4. Threats refer to the external environment that causes problems, threats to operations, or even obstacles to the organization's ability to achieve its goals.

The nomenclature of SWOT analysis is far from standardized; a paraphrasing of definitions suggested by Staffordshire University strategic management professor Claire (2003) in text on organizational context reflects their typical meaning: Strength: an internal enhancer of competence, valuable resource or attribute; Weakness: an internal inhibitor of the competence, resources, or attributes necessary for success; Opportunity: an external enhancer of performance that can be pursued or exploited to gain benefit; Threat: an external inhibitor of performance that has the potential to reduce accomplishments.

SWOT are often arranged in a 2-by-2 table or matrix (Figure 2.4), with internal enhancers of performance categorized as strengths and internal inhibitors as weaknesses. In turn, external enhancers are classified as opportunities, with external inhibitors referred to as threats (Leigh, 2010).



Figure 2.4 SWOT Analysis Model

Source: <https://www.mgsh.com.cn/strategy-management-32703.html>

An analysis of conditions within an organization (internal environment analysis) is something that managers can change or control. It determines the strengths and weaknesses of the organization.

External environment analysis refers to various things outside the organization that affect the operation of the organization. The consequences for the organization are opportunities and threats that are beyond the control of the organization's management. However, it is necessary to adjust the organization's strategy accordingly.

The external environment can be divided into two types: the macro environment does not directly affect the organization's short-term operations, but it will affect the organization's long-term decisions, including political, economic, social, and technical; the microenvironment is something that has a direct impact on the organization's operations. But it's something outside the organization. Such as stakeholders, competitors, customers, industry associations, etc. (Sammut-Bonni & Galea, 2015).

This study summarizes external environmental factors through PEST analysis and summarizes the opportunities and threats of the external environment in SWOT analysis.

Ho (2014) pointed out PEST analysis examines four categories of external environmental factors, namely:

Political factors (P): these cover various forms of government interventions and political lobbying activities in politics.

Economic factors (E) mainly cover the macroeconomic conditions of the external environment but can include seasonal/ weather considerations.

Social factors (S): these cover the external environment's social, cultural and demographic factors.

Technological factors (T): they include technology-related activities, technological infrastructures, technology incentives, and technological changes that affect the external environment.

PEST Analysis Definitions for Innovative Library Management in This Study.

The **PEST analysis** evaluates four key external factors—Political, Economic, Social, and Technological—that influence the management of innovative libraries. These factors help identify opportunities and threats aligning library management with lifelong learning principles.

Political Factors (P)

Government policies, and regulations are crucial in shaping innovative libraries. Political support determines policies on digital transformation, knowledge accessibility, and lifelong learning initiatives. Regulations can promote technology adoption and collaboration with educational institutions or impose restrictions limiting expansion and funding opportunities.

Economic Factors (E)

Financial stability impacts library funding, resource allocation, and technology investments. A strong economy enables libraries to expand AI-driven services, digital collections, and research support. At the same time, economic downturns may limit budgets, requiring alternative funding models like public-private partnerships, grants, or community-driven contributions.

Social Factors (S)

Libraries serve diverse communities, and societal trends influence service demand. With increasing reliance on remote learning and digital literacy, libraries must adapt by offering inclusive, flexible learning spaces. Understanding different user needs, from students to seniors, helps libraries promote community engagement, collaboration, and equitable access to information.

Technological Factors (T)

Advancements in AI, automation, and digital tools redefine library services. AI-powered cataloging, cloud-based research, and virtual reality learning spaces improve accessibility and efficiency. Emerging technologies like blockchain for data security and smart kiosks for self-service lending help libraries stay innovative and relevant in the digital age.

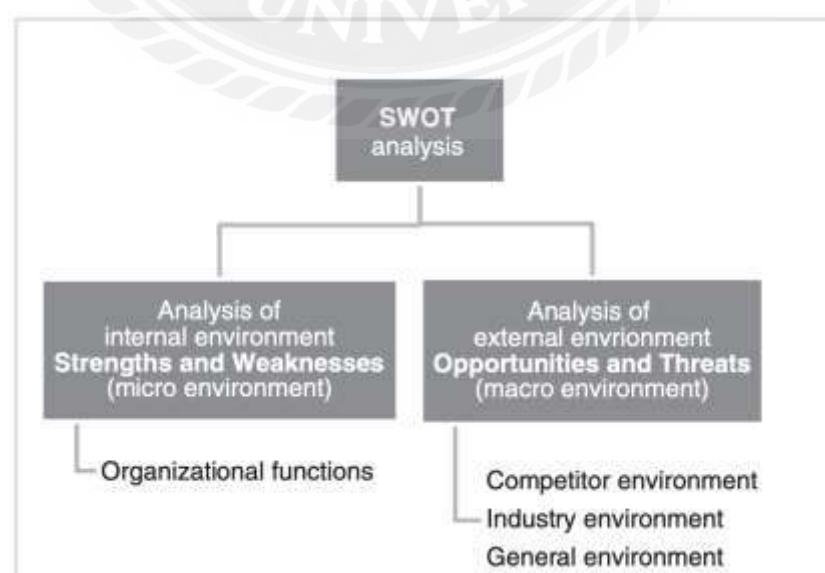


Figure 2.5 SWOT Analysis of Internal/External Environment

Because the external environment is rapidly changing, it is difficult to exercise effective control in setting the direction of the organization. Nathaphan Khecharanan (2009) divides the operational steps into the following four steps:

1. Scanning is the study of various issues by environmental analysts on the environment around the organization. They can see signs of changes that may occur in the future and examine changes that have already occurred.
2. Monitoring is tracking changes in the environment.
3. Forecasting is the use of inspection and monitoring information to predict the likelihood of various events that may occur. This will give you an idea of future trends.
4. Assessing is the assessment of potential impact, impact, and duration of impact.

To convert SWOT analysis results into action plans, this conversion tool, the TOWS analysis method, combines strengths, weaknesses, opportunities, and threats in pairs to obtain four situations. According to these four situations, four corresponding strategic countermeasures are given (Figure 2.6):

SO strategy: Rely on your own advantages, maximize the use of external opportunities, and adopt an offensive strategy.

WO strategy: Targetedly makes up for certain weaknesses, seizes external opportunities, and adopts reversal or innovation strategies.

ST strategy: Use your own advantages to meet challenges, take the initiative to use your own advantages to deal with external threats, and adopt an active defensive strategy.

WT strategy: The threats faced by enterprises are precisely the disadvantages of enterprises. They should adopt a more conservative defense strategy to compensate for their shortcomings while seeking solutions to external threats.

Strategy formulation is an ongoing activity of strategic analysis and is an important foundation for the success of each organization's strategic operations. Strategic planning begins with identifying the organization's goals, including vision, mission, goals, and objectives.

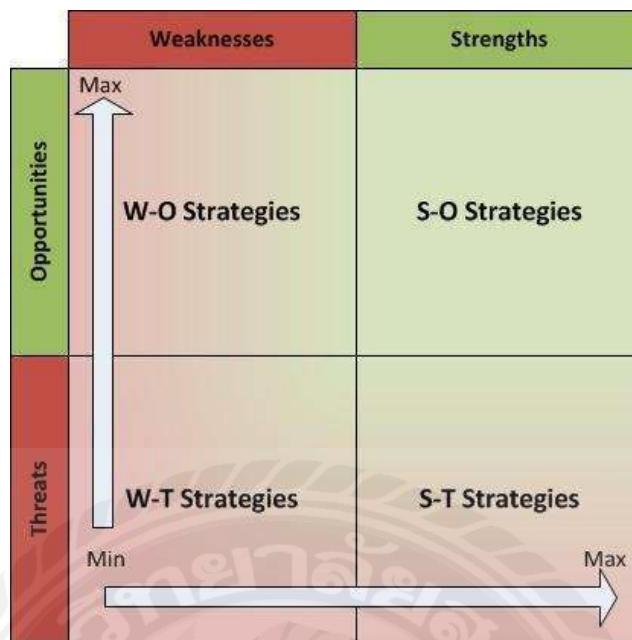


Figure 2.6 TOWS Matrix Model

Source: <https://www.mgsh.com.cn/strategy-management-32703.html>

This study develops management strategies for the innovative library based on the concept of lifelong learning by analyzing previous classic concepts, theories, and literature. Using SWOT to analyze the internal and external environment, determining strategies through TOWS matrix pairing analysis items, and finally improving the developed strategies through evaluation.

In this research, SWOT and PEST analysis and TOWS matrix are a situation analysis based on the internal and external competitive environment and competitive conditions. It lists major internal strengths, weaknesses, and external opportunities and threats closely related to the research object through investigation and arranges them in a matrix form. Then, use the idea of system analysis to match various factors with each other, analyze them, and draw a series of corresponding conclusions from them. The conclusions usually have a certain degree of decision-making. Using this method, we can conduct a comprehensive, systematic, and accurate study of the situation in which the research object is located and then formulate corresponding development strategies, plans, and countermeasures based on the research results.

2.4 Summary of Chapter Two

Chapter Two offers a comprehensive literature review that synthesizes key theories, principles, and studies to create a conceptual framework for managing innovative libraries within the paradigm of lifelong learning. The chapter begins by examining the development and operation of innovative libraries, highlighting their function as self-service public facilities supported by advanced technologies. It explores various management models and service standards, emphasizing the role of these libraries in promoting public education and preserving cultural heritage.

The discussion then shifts to the concept of lifelong learning, tracing its evolution and significance. Lifelong learning is presented as a crucial tool for personal and societal development, grounded in UNESCO's four pillars: learning to know, learning to do, learning to live together, and learning to be. These principles underscore the importance of flexibility, inclusivity, and the continuous pursuit of knowledge in fostering individual growth and community progress.

The chapter also delves into strategic management theories relevant to library operations, including classical and modern frameworks such as SWOT, TOWS, and PEST analyses. It emphasizes the importance of strategic planning, efficient resource allocation, and the integration of technology and community engagement to create adaptive and inclusive library systems. Drawing on global and local perspectives, the review incorporates insights from UNESCO guidelines, ISO standards, and case studies from China and beyond.

In conclusion, Chapter Two establishes a strategic foundation for enhancing innovative libraries' management within the lifelong learning framework by synthesizing these theories and research findings. The integration of management strategies, lifelong learning principles, and analytical tools provides a structured approach to optimizing library operations. This framework serves as a guiding reference for policymakers, educators, and library administrators in developing effective strategies to strengthen the role of innovative libraries in fostering lifelong learning and addressing evolving societal needs.



Chapter 3

Methodology

According to the research objectives and content, this research used a mixed method. By combining quantitative and qualitative research and data, a broader and deeper understanding was gained regarding the corroboration within the research. The following research methods represent key components of the study's methodology.

3.1 Analyze the current and desired situations of innovative library management based on the concept of lifelong learning, and apply the PNI-modified formula to assess developmental priorities (mixed research method by using questionnaires and PNI-modified formula).

3.2 Analyze the innovative library's strengths, weaknesses, opportunities, and threats based on the concept of lifelong learning (qualitative research method by using SWOT analysis).

3.3 Develop and improve management strategies of the innovative library based on the concept of lifelong learning (mixed research method by using TOWS matrix and focus group).

Developing and improving management strategies consists of four steps:

3.3.1 Develop management strategies of the Innovative Library based on the concept of Lifelong Learning (Draft 1).

3.3.2 Evaluate the suitability and feasibility of the management strategies of the Innovative Library based on the concept of Lifelong Learning (contributed by focus group experts) (Draft 2).

3.3.3 Evaluate the applicability of the management strategies of the Innovative Library based on the concept of Lifelong Learning (contributed by 14 managers of innovative libraries) (Draft 3).

3.3.4 Formally propose management strategies of the Innovative Library based on the concept of Lifelong Learning (Final version).

Qualitative analysis is a method to judge the nature, characteristics, development, and change law of the object of analysis mainly by the intuition and experience of the analyst, by the continuation status of the object of analysis in the past and present, and the latest information. Qualitative research is a non-statistical methodology that records oral data in the form of an interview or case study and transcribes it in text form, such as documents and notes (Holliday, 2015). Hence, the result of the qualitative approach is diverse, constructive, creative, subject, detailed, and lacks statistical generalization (Smith, 2018). Qualitative analysis is the basic premise of quantitative analysis. Quantitative analysis without qualitative analysis is a blind and worthless quantitative analysis. Quantitative analysis makes qualitative analysis more scientific and accurate; it can promote qualitative analysis to reach a broad and in-depth conclusion.

Before exploring the current and desired situations of management of the innovative library based on the concept of lifelong learning, the research Conceptual Framework for Management of the Innovative Library Based on the Concept of Lifelong Learning was developed. By collecting, identifying, and sorting out relevant research literature and theories, this research classified and analyzed the research

content and results, pointed out the importance of strategies for the management of the innovative library for fostering lifelong learning, forms a scientific understanding of the research status (research problems, research contents, research trends, etc.) of the literature, conducts in-depth research on various points of view, identified the attributes of management of the innovative library based on the concept of lifelong learning. The researcher studied concepts, theories, and studies related to the topic and developed a conceptual framework based on these studies presented in the form of document analysis, including:

Part 1: Management of the Innovative Library

Part 2: Lifelong Learning

After in-depth discussions with committee experts on the scientific plausibility of the conceptual framework, the conceptual framework of this study was revised after in-depth discussions with five defense committee experts. The researcher carefully summarized the opinions and suggestions of the experts on the defense committee on the conceptual framework, had an in-depth discussion with the advisor, and completed the adjustment of the conceptual framework under the advisor's guidance.

Luoyang, a major city in China, is administratively divided into 14 districts and counties. Given that there are 205 innovative libraries in Luoyang, this study aimed to select a representative sample using stratified non-repetitive random sampling. To determine the number of libraries sampled from each district/county, the study proportionally allocated samples based on the total number of libraries in each administrative unit.

To achieve an unbiased selection, Microsoft Excel's INDEX+RANK.EQ function was used. The process involved the following steps:

1. Assigning a Unique Identifier: Each of the 205 libraries was assigned a unique numerical ID.
2. Ranking Libraries: The RANK.EQ function was applied to rank libraries randomly within each district/county.
3. Extracting the Sample: The INDEX function was then used to retrieve a predetermined number of libraries from each district/county based on their ranks.
4. Ensuring No Repetitions: Since the sampling method was non-repetitive, it was excluded from further selection once a library was selected.

By using this method, the study ensured that the sample maintained proportional representation across all 14 districts and counties, preserving the diversity of library operations and services within Luoyang. This systematic approach minimized bias and enhanced the reliability of the research findings.

3.1 Analyze the current and desired situations of innovative library management based on the concept of lifelong learning, and apply the PNI-modified formula to assess developmental priorities

Researchers study principles, concepts, theories, and research related to library management, identify population samples of contributors to research data, and create research instruments based on research concepts. Details are as follows:

3.1.1 Luoyang As Subject of the Study

The scope of this study is the innovative library in Luoyang City in central China. Luoyang is an appropriate subject of this research because of the following reasons:

1) Luoyang is the birthplace of Chinese culture, the capital of thirteen dynasties, the political, economic, and cultural center of ancient China, and the starting point of the Silk Road, with a rich cultural heritage.

2) Luoyang is a significant and modern city, and the people here like to study and want to use innovative technology to study. Although there are big traditional libraries here, there is more demand for innovative libraries because they can deliver various resources to the places closest to the people.

3) The people of Luoyang are in great need of lifelong learning. Luoyang is the most populous prefecture-level city in the central region. The population here is dense, and the admission rate to higher education is low. People here need lifelong learning more.

Luoyang City in Henan Province has the highest urban population among prefecture-level cities in central China. It will be the largest prefecture-level city in central China, determined by the central government in 2022. At the same time, Luoyang City's economic aggregate has ranked first among prefecture-level cities in central China for many years.

The people of Luoyang City need lifelong learning because central China is one of the most densely populated regions. At the same time, Henan province is the most populous province, with about 99.37 million people. In the past three years (2021-2023), the number of students taking the college entrance examination in Henan Province has been 1.25 million, 1.25 million, and 1.31 million respectively, the most in China. But according to Easiness ranking data: 2023 provincial college entrance examination general undergraduate batch admission rate ranking, Henan college entrance examination undergraduate admission rate of 25.52%, China's average undergraduate admission rate of 34.04%, Henan college entrance examination admission rate is far lower than the average level of China, the proportion of students who can enter undergraduate study is small. According to the seventh census in 2020, only 11,744 people in Henan province have a college education or above per 100,000 people, the lowest in the central region. Therefore, the people here need a good lifelong learning environment (Ning, 2021).

4) Luoyang City's innovative libraries are developing the fastest in central China. Luoyang started building an innovative library in 2017. As of 2022, Luoyang City has built 205 innovative libraries. The Luoyang Municipal Government attaches great importance to the development of innovative libraries. It is a representative example of the rapid development of innovative libraries, and other cities can learn from it.

The Luoyang Municipal Government is actively building a "15-minute reading circle" in the city. No matter the day or night, citizens can find a suitable place to read at their doorstep. At the 2023 Library of China Annual Conference, Zhang Ya, deputy director of Luoyang Municipal Library, pointed out that 205 innovative study rooms have been built and put into use in Luoyang City, with a total construction area of more than 32,000 square meters, a collection of more than 1.2 million books, and 9,200 reading seats (Huang, 2023).

There are a total of 205 innovative libraries in Luoyang City; this study uses Krejcie-Morgan's sample calculation method (Krejcie (p.154) & Morgan, 1970) to select 136 innovative libraries for research. Therefore, the research sample are 136 innovative libraries in Luoyang City. The informants are innovative libraries' managers and users, one manager and two users from each innovative library. The total numbers of informants are 408 persons.

3.1.2 Population and Sampling

In this study, relevant sample data were obtained through a questionnaire survey. A questionnaire survey is the most widely used data collection method in social survey research. In combination with the research object and content, this study adopted the questionnaire survey method to investigate library, through which the required data is collected and scientific statistical analysis is carried out.

The questionnaire is divided into three parts: the first part is the respondent's basic information; the second part is the current and desired conditions of the management of the innovative library based on the concept of lifelong learning; and the third part is the respondent's opinions and suggestions for innovative library management based on the concept of lifelong learning. On the basis of referring to the mature scales at home and abroad and combining them with the actual situation in China, the research scales were formed through communication and modification with experts to ensure the standardization of questionnaire design. Before the formal survey, some users were invited to fill in the questionnaire on a trial basis to ensure that the wording was clear and free of ambiguity, and the formal questionnaire was formed after being modified according to the opinions of the trial fillers. The questionnaire objects manager is a group of managers.

Sample Size: This study employed stratified non-repetitive random sampling. The method suitable for small-scale research ensures fair representation across different groups. To achieve this, Microsoft Excel's INDEX+RANK.EQ function was used to randomly select samples without repetition. The RANK.EQ function assigned a numerical rank to each value within the dataset, while the INDEX function retrieved specific values based on their ranks. By combining these functions, the study efficiently extracted a randomized sample set, ensuring a systematic and unbiased selection process.

According to the stratified non-repetitive random sampling formula, this study selected 136 innovative libraries in proportion to the number of innovative libraries in each region, and randomly selected one manager and two users from each innovative library to conduct a questionnaire survey, as shown from Table 3.1 to Table 3.3.

Table 3.1 Sample Distribution of Innovative Libraries by District and County in Luoyang City

Numbering	District/ County	Population	Sample
1	Xigong District	16	10
2	Luolong (Include Yibin) District	36	24
3	Jianxi District	32	21
4	Xianhe District	12	8
5	Yanshi District	9	6
6	Laocheng District	12	8
7	Mengjin District	25	17

Numbering	District/ County	Population	Sample
8	Xin'an County	10	7
9	Yiyang County	10	7
10	Luoning County	7	4
11	Yichuan County	9	6
12	Ruyang County	10	7
13	Hao County	9	6
14	Luanchuan County	8	5
Total			136

Table 3.2 Number of Sampled Innovative Library Managers by District and County

Numbering	District/ County	Sample	Managers
1	Xigong District	10	10
2	Luolong (Include Yibin) District	24	24
3	Jianxi District	21	21
4	Xianhe District	8	8
5	Yanshi District	6	6
6	Laocheng District	8	8
7	Mengjin District	17	17
8	Xin'an County	7	7
9	Yiyang County	7	7
10	Luoning County	4	4
11	Yichuan County	6	6
12	Ruyang County	7	7
13	Hao County	6	6
14	Luanchuan County	5	5
Total			136

Table 3.3 Number of Sampled Innovative Library Users by District and County

Numbering	District/ County	Sample	Users
1	Xigong District	10	20
2	Luolong (Include Yibin) District	24	48
3	Jianxi District	21	42
4	Xianhe District	8	16
5	Yanshi District	6	12
6	Laocheng District	8	16
7	Mengjin District	17	34
8	Xin'an County	7	14
9	Yiyang County	7	14
10	Luoning County	4	8
11	Yichuan County	6	12
12	Ruyang County	7	14
13	Hao County	6	12
14	Luanchuan County	5	10
Total			272

3.1.3 Research Tools

The research instrument was a questionnaire about current and desired situations. The survey questions are divided into the following four parts:

Part 1: General information about the respondent. Including gender, age, education level, etc.

Part 2: Analyze the current and desired situations of innovative library management based on the concept of lifelong learning from the internal environment (5-point rating scale).

Part 3: Analyze the current and desired situations of innovative library management based on the concept of lifelong learning from the external environment (5-point rating scale).

Part 4: Provide additional recommendations for innovative library management to promote lifelong learning (open questions).

The second and third parts of the questionnaire adopt a 5-point scale (rating scale). The scoring criteria of the scale are as follows:

Scoring Criteria in Box "Current situation / Desired situation":

5 means that the current situation / desired situation is at the highest level.

4 means that the current situation / desired situation is at a high level.

3 means that the current situation / desired situation is at a moderate level.

2 means that the current situation / desired situation is at a low level.

1 means that the current situation / desired situation is at the lowest level.

The steps to create an instrument and check the quality of the instruments used in this study are as follows:

1. Draft a questionnaire on current and desired situations for library management based on the concept of lifelong learning.

2. Submit the prepared questionnaire to the adviser. Ask the advisor to review and provide suggestions regarding accuracy of language, coverage of questions, validity of content, appropriateness of questions, etc. Then, revise the questionnaire based on the advisor's suggestions.

3. Submit the revised draft of the questionnaire to five experts to check the content validity and consider the appropriateness of the questionnaire. The criteria for selecting qualified experts are divided into two categories: three library management experts and two lifelong education experts.

4. Calculate content validity based on the expert's consideration results, considering the consistency index between the question and the goal (Item Objective Congruence: IOC) and the criteria for judging validity. Brown (2005) mentioned that if the index of the IOC is between 0.5 and 1.0, it suggests that the item is acceptable, but if the IOC falls below 0.5, it means that the item is not fitting and must be removed or revised. Problem-to-objective alignment is calculated using an IOC value of 0.5 or higher according to the following formula: $IOC = \Sigma r/N$.

IOC represents the consensus index, with a value between -1 and +1, Σr represents the sum of expert opinion scores, and N represents the number of experts.

The scoring criteria are as follows:

+1 for agreeing with the question.

0 indicates uncertainty about whether to use the question.

-1 indicates disagreement with the use of the question.

Finally, the questionnaire was evaluated and validated by five experts (detailed information on the experts is provided in the Appendix). Based on the results of the content validity assessment, each test item achieved an Index of Item-Objective Congruence (IOC) value greater than 0.5, indicating that the questions meet the appropriate selection criteria, demonstrate content validity, and are suitable for use in this study. Some items scored below +1 but remained above 0.5, for which experts provided recommendations. The experts' recommendations are as follows:

Expert 1 recommended the following revision:

"The wording of Sub-questions 1 to 4 under 'Planning' in the questionnaire should be adjusted to align more clearly with the definition of 'Planning,' ensuring greater clarity and consistency."

Expert 2 recommended the following revision:

"The wording of Sub-question 3 under 'Human Resource Management' in the questionnaire should be revised to: 'Human resource management emphasizes cultivating respect, sympathy, and understanding between library users and society. This includes participating in the inheritance and continuation of history and traditions.' This adjustment ensures greater alignment with the definition of Human Resource Management, enhancing clarity and accuracy."

Expert 3 recommended the following revision:

"The wording of Sub-question 4 under 'Human Resource Management' in the questionnaire should be revised to: 'Human resource management emphasizes the importance of regularly engaging library users in sports, arts, and cultural activities. It focuses on developing personal imagination, creativity, aesthetic perception, physical fitness, and communication skills through various formats.' This revision ensures that the statement more accurately reflects the role of human resource management in fostering holistic development among library users."

Expert 4 recommended the following revision:

"The wording of Sub-question 2 under 'Service Work,' specifically within 'Research Service,' should be revised to: 'Research services nurture library users into becoming skilled researchers. They support users in applying research skills to generate new knowledge, enhance professional practices, and address various challenges.' This revision ensures a clearer alignment with the role of research services in fostering critical thinking and problem-solving capabilities among library users."

Expert 5 recommended the following revision:

"The wording of Question 4 under 'Coordinating' in the questionnaire should be revised to: 'Coordinating also facilitates the development of a library network that encourages users to actively participate in sports, arts, and cultural activities while fostering personal imagination, creativity, aesthetic awareness, physical fitness, and communication skills through various formats.' This revision enhances clarity and better reflects the role of coordination in promoting holistic personal development through library initiatives."

Based on the recommendations provided by the five experts, the researcher revised the questionnaire accordingly. The updated version of the questionnaire can be found in the Appendix B.

This research selected 60 people (not research informants, manager 30, user 30) with a background similar to that of Luoyang Innovative Library for a pre-test to check their understanding of the language, answer each question in the questionnaire, and then

analyze the reliability of the data obtained. The reliability coefficient was calculated using the Cronbach's alpha coefficient method (Cronbach, 1951). The specific calculation formula is as follows:

$$\alpha = \frac{K}{K-1} \left(1 - \frac{\sum S_i^2}{S_x^2} \right)$$

In the formula, α is the reliability coefficient, K is the number of test questions, S_i^2 represents the score variation of all subjects on the question, and S_x^2 is the variance of the total score of all subjects.

Generally speaking, the higher the coefficient, the higher the instrument's reliability. In basic research, the reliability should be at least 0.80 to be acceptable. In exploratory research, the reliability is acceptable as long as it reaches 0.70. Between 0.70 and 0.98 is high reliability, and less than 0.35 is low reliability and must be rejected.

After the questionnaire of this study passed IOC, the researcher began to test the reliability of the questionnaire.

In this research, SPSS24 software was used to test the reliability of the 60 test questionnaires of managers and users, and the results showed that the reliability of the two groups of data was 0.973 and 0.974 (As shown in Table 3.4), both of which were above the research standard requirements.

Table 3.4 Reliability Analysis of the Questionnaire for Managers and Users Using Cronbach's Alpha

Cronbach's alpha coefficient			
Manager		User	
Number of questions	Cronbach's alpha	Number of questions	Cronbach's alpha
99	0.973	67	0.974

3.1.4 Data Collection

The researcher requested local governments to coordinate the collection of research data. This research conducted a questionnaire survey by combining online questionnaires and face-to-face questionnaires.

In order to ensure sufficient data, this research conducted a questionnaire survey on 160 managers and 300 users. One hundred fifty-two manager questionnaires, and 285 user questionnaires (a total of 437) were recovered and could be used, meeting the requirements of this research.

3.1.5 Data Analysis

This study used SPSS24 and Microsoft Excel software to analyze the obtained questionnaires and performed statistical analysis on the data, including frequency, percentage, mean, and standard deviation (SD). The analysis of the questionnaire data is as follows:

Part 1 of the questionnaire analyzes information about the general profile of the questionnaire respondents using descriptive statistics.

Part 2 of the questionnaire analyzes the current and desired situations of the internal environment for innovative library management based on the concept of lifelong learning.

Part 3 of the questionnaire analyzes the current and desired situations of the external environment for innovative library management based on the concept of lifelong learning.

The questionnaire is a 5-level rating scale, and the data is analyzed by finding the mean and standard deviation. Mean values were interpreted using the following criteria (Likert, 1932).

The average value between 4.51 - 5.00 means conditions are at the highest level.

The average value between 3.51- 4.50 means conditions are at a high level.

The average value between 2.51 - 3.50 means conditions are at a moderate level.

The average value between 1.51 - 2.50 means conditions are at a low level.

The average value between 0.51 - 1.50 means conditions are at the lowest level.

3.1.6 Analyze PNI Modified from the Results of the Current Situation and Desired Situation of Management of the Innovative Library Based on the Concept of Lifelong Learning

Based on the data obtained from the questionnaire survey, this research used the PNI-modified method to analyze the priority of each variable. It grouped the priorities according to the specific modified index in order to analyze the problem more clearly. The specific steps are divided into the following two parts.

Priority Needs Index

This research assessed and prioritized the need for innovative library management to promote lifelong learning based on the following criteria.

Analyze data using technology or computing to find a modified Priority Needs Index (PNI-Modified) to prioritize the need for innovative library management. Use the following calculation formula (Wongwanich, 2007).

$$\text{PNI-modified value} = (I - D) / D$$

Among them, I refers to the desired situation of innovative library management to promote lifelong learning (what the desired situation should be), and D refers to the current situation of innovative library management based on the concept of lifelong learning (what the current situation is).

Group by PNI Modified Value

In order to clarify the research questions, this research divided each variable into two groups according to the PNI-modified value for the study.

To analyze the data considering the basic needs of library management, the highest PNI-modified value was calculated by subtracting the lowest PNI-modified value and dividing the difference by 2. The PNI-modified values were divided into two groups using the distance obtained by the difference: the high PNI-modified group and the low PNI-modified group.

High PNI-modified group \geq The highest PNI value – (The highest PNI value – The lowest PNI value)/2

Low PNI-modified group $<$ The highest PNI value – (The highest PNI value – The lowest PNI value)/2

3.2 Analyze the Strengths, Weaknesses, Opportunities and Threats of Innovative Library Management Based on the Concept of Lifelong Learning

This study used SWOT analysis to analyze innovative libraries' Strengths, weaknesses, Opportunities, and Threats in promoting lifelong learning and identify the internal and external influencing factors, created a TOWS matrix based on the internal and external environment faced by the current research object and analyzed various combination strategies in detail.

1) According to the internal environment questionnaire analysis results grouping, the group with a high PNI-modified value will be a weakness (W). In contrast, the group with a low PNI-modified value will be a strength (S).

2) Grouping of external environment questionnaire analysis results, groups with high PNI-modified values will be threats (T), while groups with low PNI-modified values will be opportunities (O).

3) The SWOT analysis method analyzes innovative library management's strengths, weaknesses, opportunities, and threats based on the concept of lifelong learning.

3.3 Develop Management Strategies of the Innovative Library Based on the Concept of Lifelong Learning

The researcher first formed the TOWS matrix based on the SWOT analysis results.

1. Match Weaknesses to Threats (WT) and determine strategies by trying to reduce weaknesses and avoid threats (defensive strategy).

2. Match Weaknesses to Opportunities (WO) and determine strategies by overcoming weaknesses and making full use of opportunities (turnaround strategy).

3. Match strengths to threats (ST). Determine strategies to expand business scope by leveraging strengths and avoiding threats (diversification strategy).

4. Match strengths to opportunities (SO) and develop positive strategies by strengthening strengths and exploiting opportunities (growth strategies).

After forming the TOWS matrix, the researcher had repeated discussions with the advisor and finally developed the draft of innovative library management strategies based on lifelong learning according to the results of the SWOT analysis and TOWS matrix analysis.

3.4 Evaluate the Suitability and Feasibility of Management Strategies of the Innovative Library Based on the Concept of Lifelong Learning

After obtaining management strategies for the innovative library based on the concept of lifelong learning, this research examined the suitability and feasibility of the proposed innovative library management strategies. The study requested government coordination to invite seven experts to participate in focus group discussions, where they evaluated the management strategies, provided insights and recommendations, and suggested necessary modifications. Based on their feedback, the researcher refined and improved the draft strategies before submitting the final version to advisors for review.

3.4.1 Expert Participants

Request government coordination and invite experts in library, education, and management, a total of 7 people, 3 of them are experts in the field of library, 2 of them are experts in the field of education, and 2 of them are experts in the field of management.

Criteria for selecting experts:

For the experts in the field of library - An expert must have work experience working at an innovative library for more than 3 years.

For the experts in the field of education/management, an expert must be a university faculty member engaged in education/management teaching at a university or an official engaged in education/management in the government.

3.4.2 Evaluation Instruments and Materials

Prepare the information for the experts to use when running the focus group.

- 1) A brief introduction of the research.
- 2) The objectives and the benefits of the research.
- 3) A summary of the research methods.
- 4) The drafted strategies.

Guide the experts in conducting an open-ended oral evaluation of management strategies based on the materials provided by the researchers. Upon completion, the results were handed over to the research adviser to check the validity of the content. The information gathered from this review process was then used to make suggestions for improvements and revisions to the questions. Management strategies were subsequently adjusted in accordance with the guidance and recommendations provided by the adviser.

3.5 Evaluate the Applicability of the Management Strategies of the Innovative Library Based on the Concept of Lifelong Learning

After obtaining the modified management strategies of the innovative library based on the concept of lifelong learning, this research further examined the applicability of the draft innovative library management strategy, requested the government to coordinate the invitation of 14 innovative library managers to evaluate management strategies, improved and modified the management strategies, and finally submitted the management strategies to the advisor for review.

3.5.1 Instruments for Applicability Evaluation

The argument outline used to assess the applicability of innovative library management strategies is divided into three parts:

Part 1 The basic information of the respondents.

Part 2: The evaluation of the applicability of innovative library management strategies based on the concept of lifelong learning.

Part 3: The suggestion of the applicability of innovative library management strategies based on the concept of lifelong learning (Open questions).

The strategy evaluation form was distributed to library managers across all fourteen districts in Luoyang City. Participants were asked to evaluate the proposed strategies using a three-point scale: "Easy to Apply," "Moderate to Apply," and "Hard to Apply."

3.5.2 Analysis of Applicability Evaluation Results

The researcher analyzed the responses by calculating their frequencies and organized the results into a table, which included both the frequency data and corresponding recommendations for the proposed strategies.

The researcher improved the management strategies based on the evaluation results of innovative library managers, and adjusted the management strategies under the guidance of the advisor.

3.6 Summary of Chapter Three

Chapter Three presents the methodology used to develop and evaluate management strategies for innovative libraries, guided by the principles of lifelong learning. A mixed-methods approach combining qualitative and quantitative research provided a comprehensive framework for addressing the study's objectives. The conceptual framework was developed through extensive literature reviews and expert consultations, ensuring alignment with lifelong learning principles. The surveys conducted with library managers and users in Luoyang City examined both the current conditions and desired scenarios for library management.

The research prioritized areas for improvement using a modified Priority Needs Index (PNI) analysis, which assessed the gaps between current and ideal conditions. SWOT analysis identified internal strengths and weaknesses alongside external opportunities and threats, while the TOWS matrix translated these insights into actionable strategies. Draft strategies were refined through expert consultations and focus groups to ensure their feasibility and alignment with real-world needs. To validate the practicality of these strategies, an applicability evaluation was conducted with 14 innovative library managers.

Quantitative data were analysed using SPSS and reliability testing to ensure accuracy, while qualitative insights provided a deeper understanding of the strategies' potential impact. This rigorous approach integrated both empirical data and stakeholder perspectives, resulting in actionable, evidence-based strategies for innovative library management.

In conclusion, this chapter establishes a strong methodological foundation for promoting lifelong learning through innovative library management. By blending qualitative and quantitative methods with strategic tools such as SWOT, TOWS, and PNI analyses, the research addressed internal and external challenges effectively. Expert consultations and evaluations further validated the strategies' feasibility, ensuring they meet user needs while advancing lifelong learning as a pillar of community development.

Chapter 4

Research Results and Analysis

The research primarily focuses on analyzing data related to management strategies for innovative libraries based on the concept of lifelong learning. The analysis is organized into three key components:

- 4.1 Analysis of the current and desired situations of innovative library management based on the concept of lifelong learning, including the application of PNI-modified values to assess developmental priorities.
- 4.2 Interpretation of the condition and strategic implications derived from the calculated PNI-modified values.
- 4.3 Development of management strategies for the innovative library based on the concept of lifelong learning.

4.1 Analysis of the Current and Desired Situations of Innovative Library Management Based on the Concept of Lifelong Learning, Including the Application of PNI-Modified Values to Assess Developmental Priorities

Following the pilot phase of instrument validation, a comprehensive survey was conducted with the selected sample to collect data on the current and desired conditions of innovative library management. This section presents the findings from the analysis, focusing on how existing practices align with the principles of lifelong learning and identifying gaps between present performance and stakeholder expectations.

To systematically assess these gaps and prioritize areas for improvement, the study employed the Priority Needs Index – Modified (PNI-modified). This quantitative measure enables the evaluation of discrepancies between the actual and ideal states, thereby supporting data-driven decision-making for strategic development.

The PNI-modified is calculated using the formula proposed by Wongwanich (2007):

$$\text{PNI-modified} = (I-D) / D$$

where:

I denotes the desired condition, or the optimal level of innovative library management as expected by respondents;

D denotes the current condition, or the actual status of library management practices observed.

The resulting PNI-modified values provide a prioritized framework for identifying which components of library management require the most urgent attention. This enables strategic planning focused on enhancing the library's effectiveness in promoting and supporting lifelong learning.

4.1.1 Demographic Profile of the Respondents

The demographic profile of the respondents in this study encompasses four key variables: gender, age, position, and educational attainment, as presented in Tables 4.1 and 4.2.

Table 4.1 Demographic Profile of Innovative Library Managers

Demographic Profile	n	%
Gender		
Male	52	34.2
Female	100	65.8
Age		
22-30	24	15.8
31-40	41	27.0
41-50	61	40.1
51-60	22	14.5
Above 60	4	2.6
Education		
High school diploma level and below	12	7.9
Associate diploma level	70	46.1
Bachelor's degree level	54	35.5
Master's degree level	16	10.5
Doctoral degree level	0	0.0
Total	152	100

Table 4.1 presents the demographic characteristics of the 152 managers involved in the administration of innovative libraries. The data are categorized by gender, age group, and educational attainment.

In terms of **gender**, a significant majority of managers are female, accounting for 65.8%, while male managers represent 34.2%. This indicates a gender distribution skewed toward female leadership in the context of innovative library management.

Regarding **age**, the most represented age groups are those between **41–50 years** (40.1%) and **31–40 years** (27.0%), suggesting that the managerial cohort is predominantly composed of mid-career professionals. The least represented are those aged **above 60** (2.6%) and **51–60** (14.5%), reflecting a relatively younger managerial demographic overall.

In terms of **educational attainment**, the majority of managers hold either an **associate diploma** (46.1%) or a **bachelor's degree** (35.5%), indicating a strong foundational academic background. A smaller proportion hold a **master's degree** (10.5%), and no respondents reported having a doctoral degree. A minimal group (7.9%) hold a high school diploma or below.

These findings suggest that innovative library managers tend to be female, mid-career professionals with qualifications at the diploma or bachelor's level, which has implications for capacity building and professional development strategies within the sector.

Table 4.2 Demographic Profile of Innovative Library Users

Demographic Profile	n	%
Gender		
Male	133	46.7
Female	152	53.3
Age		
Under 18	46	16.0
18-30	105	36.8
31-40	66	23.0
41-50	42	14.7
51-60	18	6.3
Above 60	8	2.8
Education		
High school diploma level and below	50	17.5
Associate diploma level	95	33.3
Bachelor's degree level	103	36.2
Master's degree level	36	12.6
Doctoral degree level	1	0.4
Total	285	100

Table 4.2 presents the demographic profile of 285 users of innovative libraries, categorized by gender, age group, and level of education.

In terms of **gender distribution**, the proportion of male (46.7%) and female (53.3%) users is relatively balanced, with a slight predominance of female users.

For **age**, the largest group of users falls within the **18–30 age range** (36.8%), followed by the **31–40 age group** (23.0%). This indicates that the majority of library users are young adults and early-career individuals. Fewer users are in the **41–50** (14.7%), **51–60** (6.3%), and **above 60** (2.8%) categories. Notably, a significant proportion (16.0%) are **under 18**, suggesting the library also plays a substantial role in supporting youth learning and development.

In terms of **educational attainment**, most users hold either an **associate diploma** (33.3%) or a **bachelor's degree** (36.2%). Additionally, 12.6% hold a **master's degree**, while a small minority (0.4%) possess a **doctoral degree**. A notable portion of users (17.5%) have a **high school diploma or below**, indicating that the library serves a diverse educational audience.

Overall, the user profile reflects a demographically diverse group, with a concentration of young adults and individuals possessing post-secondary education. This diversity highlights the innovative library's role in supporting lifelong learning across various age and educational groups.

4.1.2 Analysis of the Current Situation and Desired Situation of Innovative Library Management Based on the Concept of Lifelong Learning from the Internal Environment

This section presents an analysis of the current and desired states of innovative library management, as perceived within the internal environment. Data were collected through structured questionnaires, systematically classified, and summarized. A step-

by-step analytical process was employed to interpret the data, yielding preliminary insights into the strengths and areas requiring improvement.

Table 4.3 Current and Desired Situations and PNI-Modified Values of Innovative Library Management Based on the Concept of Lifelong Learning

Management Component	Current situation (D)		Desired situation (I)		PNI-Modified Values (I-D/D)	Rank
	\bar{x}	SD	\bar{x}	SD		
1. Management work	3.2253	0.7853	4.5748	0.5183	0.4184	1
1) Planning	3.5444	0.7667	4.5559	0.5507	0.2854	7
2) Organizing	2.9424	0.8308	4.5164	0.5533	0.5349	2
3) Human resource management	2.9079	0.7942	4.5921	0.5051	0.5792	1
4) Directing	3.0477	0.8114	4.6053	0.5122	0.5111	3
5) Coordinating	3.1234	0.7698	4.6480	0.5113	0.4881	5
6) Reporting	3.0411	0.8238	4.5938	0.5145	0.5106	4
7) Budgeting	3.5164	0.7213	4.5230	0.5032	0.2863	6
8) Information resource management	3.6793	0.7642	4.5641	0.4963	0.2405	8
2. Service work	3.4599	0.8244	4.6397	0.5727	0.3410	2
1) Information service	3.5175	0.7987	4.5702	0.6082	0.2993	3
2) Research service	3.0947	0.8306	4.6465	0.5704	0.5014	1
3) Space service	3.5298	0.8720	4.6886	0.5271	0.3283	2
4) Educational training	3.6974	0.7965	4.6535	0.5853	0.2586	4

Table 4.3 presents the comparison between the current and desired states of innovative library management based on the concept of lifelong learning, analyzed using the PNI-modified index. The analysis categorizes management into two major dimensions: *Management Work* and *Service Work*, each comprising several subcomponents.

In the *current situation*, the component with the highest average score is **Information Resource Management** ($\bar{x} = 3.6793$, $SD = 0.7642$), suggesting relative strength in this area. Conversely, **Human Resource Management** scores the lowest ($\bar{x} = 2.9079$, $SD = 0.7942$), indicating a significant area for improvement.

In terms of the *desired situation*, respondents express the highest expectations for **Coordinating** ($\bar{x} = 4.6480$, $SD = 0.5113$), followed by **Directing** and **Reporting**. The lowest expectation is found in **Organizing** ($\bar{x} = 4.5164$, $SD = 0.5533$), although its value remains high overall.

For the *Service Work* domain, **Educational Training** receives the highest score in the current situation ($\bar{x} = 3.6974$, $SD = 0.7965$), whereas **Research Service** is rated the lowest ($\bar{x} = 3.0947$, $SD = 0.8306$). However, in the desired state, **Space Service** is rated highest ($\bar{x} = 4.6886$, $SD = 0.5271$), highlighting its perceived importance among users, while **Information Service** receives the lowest desired rating ($\bar{x} = 4.5702$, $SD = 0.6082$).

Analysis of the PNI-Modified Values further underscores these findings. **Human Resource Management** exhibits the highest PNI-modified score (0.5792), signaling a critical area of need for development. In contrast, **Information Resource Management** shows the lowest PNI-modified score (0.2405), identifying it as a relative strength within the current management structure. Among service-related components, **Research Service** also reveals a significant gap between current and desired states (PNI-modified = 0.5014), reinforcing its status as a priority for strategic improvement.

Overall, these findings suggest that while the innovative library demonstrates strengths in information resource management and educational training, there are pressing needs in areas such as human resources and research services that require strategic interventions.

Table 4.4 Summary of Current and Desired Situations and PNI-Modified Values of Innovative Library Management by Management Dimensions

Management Dimension	Current situation (D)		Desired situation (I)		PNI-Modified Values (I-D/D)	Rank
	\bar{x}	SD	\bar{x}	SD		
Management work	3.2253	0.7853	4.5748	0.5183	0.4184	1
Service work	3.4599	0.8244	4.6397	0.5727	0.3410	2
Total mean	3.3426	0.8049	4.6073	0.5455		

Table 4.4 presents a comparison between the current and desired conditions of innovative library management, organized by two primary dimensions: **Management Work** and **Service Work**. The analysis also includes the PNI-modified values, which quantify the gaps between the existing and expected states.

In the current state, **Service Work** demonstrates a slightly higher overall mean ($\bar{x} = 3.4599$, SD = 0.8244) compared to **Management Work** ($\bar{x} = 3.2253$, SD = 0.7853), indicating a relatively stronger performance in service-related functions. This suggests that services provided to library users—such as information dissemination and learning support—are somewhat more developed than internal administrative functions.

Conversely, in the desired state, expectations are high across both dimensions. **Service Work** again ranks slightly higher ($\bar{x} = 4.6397$, SD = 0.5727), followed by **Management Work** ($\bar{x} = 4.5748$, SD = 0.5183), suggesting stakeholders place significant value on improving both areas.

In terms of the **PNI-modified values**, which reflect the relative need for improvement, **Management Work** exhibits a higher index (0.4184) compared to **Service Work** (0.3410). This indicates that although Service Work currently performs better, Management Work requires more urgent strategic attention to bridge the gap between its current and desired states.

Table 4.5 Current and Desired Situations and PNI-Modified Values of Innovative Library Management (Management Work) Classified by Lifelong Learning Dimensions

Lifelong Learning Dimension	Current situation (D)		Desired situation (I)		PNI-Modified Values (I-D/D)	Rank
	\bar{x}	SD	\bar{x}	SD		
Management work	3.2981	0.7606	4.6310	0.4937	0.4184	1
1. Learning to know	3.3520	0.7832	4.5551	0.5230	0.3589	4
2. Learning to do	3.0074	0.8170	4.5905	0.5243	0.5264	1
3. Learning to live together	3.2179	0.8439	4.5567	0.5212	0.4160	2
4. Learning to be	3.3240	0.8531	4.5970	0.5104	0.3830	3

Table 4.5 analyzes the current and desired conditions of **Management Work** in innovative library management, categorized according to four lifelong learning dimensions: *Learning to know*, *Learning to do*, *Learning to live together*, and *Learning to be*. The analysis is further supported by PNI-modified values to assess the relative need for improvement across these dimensions.

In terms of the **current situation**, the highest average score is observed in the dimension *Learning to know* ($\bar{x} = 3.3520$, $SD = 0.7832$), suggesting a relatively stronger performance in knowledge acquisition and information access. This is followed by *Learning to be* and *Learning to live together*. The lowest score is found in *Learning to do* ($\bar{x} = 3.0074$, $SD = 0.8170$), indicating potential limitations in developing practical and applied skills through management processes.

For the **desired situation**, the highest mean is recorded for *Learning to be* ($\bar{x} = 4.5970$, $SD = 0.5104$), emphasizing the importance stakeholders place on fostering personal autonomy, responsibility, and reflective learning. The lowest desired value, although still high, is found in *Learning to know* ($\bar{x} = 4.5551$, $SD = 0.5230$).

The **PNI-modified values** further highlight these gaps. *Learning to do* records the highest index (0.5264), identifying it as the most urgent area for development. This suggests that the management component of the library must place greater emphasis on translating knowledge into actionable skills. In contrast, *Learning to know* has the lowest PNI-modified value (0.3589), indicating a relatively smaller gap and thus a strength in the current system.

Overall, the findings indicate that while all four lifelong learning dimensions are prioritized in the desired future state, the area with the greatest developmental need in **Management Work** is the practical application of knowledge—*Learning to do*.

Table 4.6 Current and Desired Situations and PNI-Modified Values of Innovative Library Management (Service Work) Classified by Lifelong Learning Dimensions

Lifelong Learning Dimension	Current situation (D)		Desired situation (I)		PNI-Modified Values (I-D/D)	Rank
	\bar{x}	SD	\bar{x}	SD		
Service work	3.4599	0.8244	4.6397	0.5727	0.1693	2
1. Learning to know	3.5807	0.8606	4.6333	0.5902	0.2940	4
2. Learning to do	3.2825	0.8521	4.6491	0.5758	0.4164	1
3. Learning to live together	3.4658	0.8369	4.6246	0.5846	0.3343	2
4. Learning to be	3.5105	0.8396	4.6518	0.5486	0.3251	3

Table 4.6 presents an analysis of **Service Work** within the management of innovative libraries, classified according to the four lifelong learning dimensions: *Learning to know*, *Learning to do*, *Learning to live together*, and *Learning to be*. The analysis includes both current and desired situations, along with the calculated PNI-modified values to indicate areas of priority for development.

In the **current condition**, the highest mean score is observed for the dimension *Learning to know* ($\bar{x} = 3.5807$, $SD = 0.8606$), followed by *Learning to be* and *Learning to live together*. The lowest score is recorded for *Learning to do* ($\bar{x} = 3.2825$, $SD = 0.8521$), suggesting that practical, action-oriented service delivery is perceived as less developed compared to other dimensions.

With respect to the **desired condition**, respondents express the highest expectations for *Learning to be* ($\bar{x} = 4.6518$, $SD = 0.5486$), which emphasizes personal development and responsibility through library services. *Learning to do* and *Learning to know* follow closely, while *Learning to live together* has the lowest desired score, though it remains at a high level ($\bar{x} = 4.6246$, $SD = 0.5846$).

The **PNI-modified values** reveal the most substantial need for improvement in *Learning to do* (0.4164), indicating that enhancing service activities that support the application of knowledge and skill development is a top priority. In contrast, *Learning to know* has the lowest PNI-modified value (0.2940), identifying it as a relative strength within the service-oriented functions of the library.

These findings underscore the need to strengthen action-based learning support within service work while maintaining and refining information-focused services already perceived as well-developed.

Table 4.7 Summary of Current and Desired Situations and PNI-Modified Values of Innovative Library Management Classified by Lifelong Learning Dimensions

Lifelong Learning Dimension	Current situation (D)		Desired situation (I)		PNI-Modified Values (I-D/D)	Rank
	\bar{x}	SD	\bar{x}	SD		
1. Learning to know	3.4664	0.8219	4.5942	0.5566	0.3254	4
2. Learning to do	3.1450	0.8346	4.6198	0.5501	0.4690	1
3. Learning to live together	3.3419	0.8404	4.5901	0.5529	0.3737	2
4. Learning to be	3.4173	0.8464	4.6244	0.5295	0.3533	3

Table 4.7 provides a summary of the current and desired states of **innovative library management**, organized according to the four core lifelong learning dimensions: *Learning to know*, *Learning to do*, *Learning to live together*, and *Learning to be*. The analysis integrates findings across both **management work** and **service work**, offering a holistic view of how the library supports lifelong learning goals.

In terms of the **current situation**, the highest mean score is recorded for *Learning to know* ($\bar{x} = 3.4664$, $SD = 0.8219$), indicating that the library is most effective in supporting knowledge acquisition and informational access. This is followed by *Learning to be* and *Learning to live together*. The lowest score is associated with *Learning to do* ($\bar{x} = 3.1450$, $SD = 0.8346$), suggesting that the library is less equipped to support applied skills or experiential learning.

Regarding the **desired situation**, *Learning to be* has the highest average ($\bar{x} = 4.6244$, $SD = 0.5295$), emphasizing the importance placed by stakeholders on personal development, autonomy, and responsibility. Other dimensions follow closely, with all desired values being uniformly high, indicating comprehensive expectations for the library's role in lifelong learning.

The **PNI-modified values** reveal the most substantial gap in *Learning to do* (0.4690), highlighting it as the highest priority for improvement. This is followed by *Learning to live together* (0.3737) and *Learning to be* (0.3533). *Learning to know* (0.3254) presents the smallest gap, reflecting an existing strength in knowledge-related services and programming.

In summary, while all lifelong learning dimensions are valued in the desired state, the data suggest a particular need to enhance the library's role in enabling users to apply knowledge in real-world contexts (*Learning to do*) and to engage in collaborative and civic learning (*Learning to live together*).

4.1.3 Analysis of the Current Situation and Desired Situation of Innovative Library Management Based on the Concept of Lifelong Learning from the External Environment

This section examines the current and desired states of innovative library management through the lens of external environmental factors within the framework of lifelong learning. The analysis focuses on four key dimensions: political, economic, social, and technological factors, each of which plays a critical role in shaping the management context of innovative libraries.

Table 4.8 Summary of Current and Desired Situations and PNI-Modified Values of Innovative Library Management Based on External Environmental Factors

External Environmental Factor	Current situation (D)		Desired situation (I)		PNI-Modified Values (I-D/D)	Rank
	\bar{x}	SD	\bar{x}	SD		
Political factors	3.3870	0.7772	4.7260	0.4857	0.3953	2
Economic factors	3.7947	0.7238	4.7334	0.4806	0.2390	3
Social factors	3.3647	0.7405	4.7434	0.4900	0.4098	1
Technological factors	3.8074	0.7063	4.6973	0.4931	0.2337	4
Total mean	3.5885	0.7370	4.7251	0.4874		

Table 4.8 presents the analysis of innovative library management within the context of **external environmental factors**, including **political**, **economic**, **social**, and **technological** dimensions. It presents the mean scores for both the current and desired situations, along with the corresponding PNI-modified values, which indicate the magnitude of need for development in each area.

In the **current situation**, the highest average scores are found in the **technological** ($\bar{x} = 3.8074$, $SD = 0.7063$) and **economic** ($\bar{x} = 3.7947$, $SD = 0.7238$) domains, suggesting that the existing infrastructure and financial support are perceived as relatively strong. Conversely, the **political** ($\bar{x} = 3.3870$, $SD = 0.7772$) and **social** ($\bar{x} = 3.3647$, $SD = 0.7405$) dimensions reflect more moderate evaluations, indicating a need for further improvement in these areas.

In the **desired situation**, expectations are uniformly high across all external factors. The highest average desired score is for **social factors** ($\bar{x} = 4.7434$, $SD = 0.4900$), followed closely by **economic** ($\bar{x} = 4.7334$, $SD = 0.4806$) and **political** ($\bar{x} = 4.7260$, $SD = 0.4857$) factors. The **technological** domain, while still highly rated, registers the lowest desired score ($\bar{x} = 4.6973$, $SD = 0.4931$), indicating a relatively smaller perceived gap.

The **PNI-modified values** provide insight into the priority needs. The **social factor** records the highest value (0.4098), highlighting it as the most critical area for improvement. This is followed by the **political** factor (0.3953). In contrast, the **technological** factor presents the lowest PNI-modified value (0.2337), suggesting it is currently the most adequately addressed dimension within the external environment.

Overall, the findings indicate that while technological and economic environments are relatively well established, **social and political conditions** represent more pressing areas for strategic enhancement in support of innovative library management aligned with lifelong learning.

Table 4.9 Analysis of Political Factors Influencing Innovative Library Management and PNI-Modified Values Classified by Lifelong Learning Dimensions

Component / Lifelong Learning Dimension	Current situation (D)		Desired situation (I)		PNI-Modified Values (I-D/D)	Rank
	\bar{x}	SD	\bar{x}	SD		
Management work	3.2467	0.7145	4.7336	0.4504	0.4580	1
1. Learning to know	3.3026	0.7724	4.7368	0.4418	0.4343	4
2. Learning to do	3.1645	0.6754	4.7434	0.4382	0.4990	1
3. Learning to live together	3.2500	0.6735	4.7039	0.4723	0.4474	3
4. Learning to be	3.2697	0.7367	4.7500	0.4494	0.4527	2
Service work	3.5272	0.8398	4.7184	0.5210	0.3377	2
1. Learning to know	3.6772	0.8687	4.7298	0.5247	0.2863	4
2. Learning to do	3.3614	0.8000	4.6947	0.5256	0.3967	1
3. Learning to live together	3.5439	0.8407	4.7193	0.5158	0.3317	3
4. Learning to be	3.5263	0.8497	4.7298	0.5180	0.3413	2

Table 4.9 presents an analysis of the **political dimension** within the external environment and its influence on **innovative library management**, with a focus on the four lifelong learning dimensions. The data are divided into two major areas: **management work** and **service work**, each assessed by current and desired states, and evaluated using PNI-modified values to determine the urgency of development needs.

In the **current condition**, the average score for **management work** under political factors is moderate ($\bar{x} = 3.2467$, $SD = 0.7145$), with *Learning to know* receiving the highest score ($\bar{x} = 3.3026$, $SD = 0.7724$) and *Learning to do* the lowest ($\bar{x} = 3.1645$, $SD = 0.6754$). For **service work**, the average score is higher ($\bar{x} = 3.5272$, $SD = 0.8398$), indicating stronger perceived performance. Within this category, *Learning to know* again ranks highest ($\bar{x} = 3.6772$, $SD = 0.8687$), while *Learning to do* remains the lowest ($\bar{x} = 3.3614$, $SD = 0.8000$).

In the **desired condition**, expectations are consistently high across all dimensions. For **management work**, the highest desired score is found in *Learning to be* ($\bar{x} = 4.7500$, $SD = 0.4494$), while *Learning to live together* receives the lowest ($\bar{x} = 4.7039$, $SD = 0.4723$). For **service work**, all dimensions are rated at the highest level, with *Learning to know* leading ($\bar{x} = 4.7298$, $SD = 0.5247$).

The **PNI-modified values** reflect the magnitude of development needs. In **management work**, *Learning to do* shows the greatest need (PNI-modified = 0.4990), indicating a significant gap between current and expected conditions. Conversely, in **service work**, *Learning to know* has the lowest PNI-modified value (0.2863), suggesting it is a relative strength under political influences.

Overall, the results indicate that within the political context, the **application of knowledge in practice** (*Learning to do*) is the most pressing area for development in

both management and service domains. Conversely, *Learning to know* is perceived as relatively well-established, particularly in service delivery.

Table 4.10 Analysis of Economic Factors Influencing Innovative Library Management and PNI-Modified Values Classified by Lifelong Learning Dimensions

Component / Lifelong Learning Dimension	Current situation (D)		Desired situation (I)		PNI-Modified Values (I-D/D)	Rank
	\bar{x}	SD	\bar{x}	SD		
Management work	3.7928	0.7037	4.7895	0.4156	0.2628	1
1. Learning to know	3.8289	0.6979	4.8224	0.3835	0.2595	3
2. Learning to do	3.7368	0.6169	4.7697	0.4378	0.2764	1
3. Learning to live together	3.8026	0.7191	4.7566	0.4306	0.2509	4
4. Learning to be	3.8026	0.7809	4.8092	0.4107	0.2647	2
Service work	3.7965	0.7439	4.6772	0.5456	0.2320	2
1. Learning to know	3.8281	0.7330	4.6772	0.5383	0.2218	2
2. Learning to do	3.6807	0.7410	4.7404	0.4921	0.2879	1
3. Learning to live together	3.8667	0.7803	4.6526	0.5772	0.2033	4
4. Learning to be	3.8105	0.7213	4.6386	0.5746	0.2173	3

Table 4.10 examines the influence of **economic factors** on innovative library management, with data organized by the four lifelong learning dimensions (*Learning to know*, *Learning to do*, *Learning to live together*, and *Learning to be*) across both **management work** and **service work** domains. The analysis compares current and desired situations and assesses development priorities using PNI-modified values.

In the **current condition**, both **management work** ($\bar{x} = 3.7928$, $SD = 0.7037$) and **service work** ($\bar{x} = 3.7965$, $SD = 0.7439$) are rated relatively high, indicating that economic support for library operations is perceived as satisfactory. Within **management work**, *Learning to know* scores the highest ($\bar{x} = 3.8289$), while *Learning to do* is the lowest ($\bar{x} = 3.7368$). For **service work**, *Learning to live together* ranks highest ($\bar{x} = 3.8667$), and *Learning to do* is again rated the lowest ($\bar{x} = 3.6807$).

The **desired condition** reflects consistently high expectations. For **management work**, the highest desired score is for *Learning to know* ($\bar{x} = 4.8224$), while *Learning to live together* receives the lowest ($\bar{x} = 4.7566$). In **service work**, *Learning to do* is most desired ($\bar{x} = 4.7404$), and *Learning to be* is the least ($\bar{x} = 4.6386$).

The **PNI-modified values** reveal the gaps between current and expected conditions. In **management work**, the highest value is for *Learning to do* (0.2764), identifying it as the greatest area of economic development need. In **service work**, *Learning to do* again holds the highest value (0.2879), confirming a consistent need to enhance practical and skills-based learning support. The lowest value is observed in *Learning to live together* (0.2033), suggesting it is comparatively well-supported within the current economic framework.

In summary, the findings suggest that while economic conditions generally support library functions, there is a notable need to enhance the library's capacity to

facilitate **applied learning and practical engagement** (*Learning to do*) in both management and service areas.

Table 4.11 Analysis of Social Factors Influencing Innovative Library Management and PNI-Modified Values Classified by Lifelong Learning Dimensions

Component / Lifelong Learning Dimension	Current situation (D)		Desired situation (I)		PNI-Modified Values (I-D/D)	Rank
	\bar{x}	SD	\bar{x}	SD		
Management work	3.2566	0.6726	4.7780	0.4428	0.4672	1
1. Learning to know	3.2697	0.6902	4.7895	0.4249	0.4648	3
2. Learning to do	3.0855	0.6705	4.7566	0.4457	0.5416	1
3. Learning to live together	3.2500	0.6833	4.7829	0.4872	0.4717	2
4. Learning to be	3.4211	0.6462	4.7829	0.4136	0.3981	4
Service work	3.4728	0.8083	4.7088	0.5372	0.3559	2
1. Learning to know	3.5298	0.8244	4.7298	0.5247	0.3400	3
2. Learning to do	3.3684	0.7513	4.7368	0.5216	0.4063	1
3. Learning to live together	3.4772	0.8160	4.7053	0.5282	0.3532	2
4. Learning to be	3.5158	0.8417	4.6632	0.5743	0.3263	4

Table 4.11 presents an analysis of **social factors** as external environmental influences on innovative library management, using the framework of the four lifelong learning dimensions: *Learning to know*, *Learning to do*, *Learning to live together*, and *Learning to be*. The analysis distinguishes between **management work** and **service work**, and assesses development needs through PNI-modified values.

In the **current condition**, the average score for **management work** under social factors is moderate ($\bar{x} = 3.2566$, $SD = 0.6726$), with *Learning to be* rated the highest ($\bar{x} = 3.4211$, $SD = 0.6462$) and *Learning to do* the lowest ($\bar{x} = 3.0855$, $SD = 0.6705$). For **service work**, the condition is similarly moderate ($\bar{x} = 3.4728$, $SD = 0.8083$), with *Learning to know* leading ($\bar{x} = 3.5298$, $SD = 0.8244$) and *Learning to do* again rated lowest ($\bar{x} = 3.3684$, $SD = 0.7513$).

In the **desired condition**, expectations are uniformly high. For **management work**, *Learning to know* ranks highest ($\bar{x} = 4.7895$, $SD = 0.4249$), indicating strong demand for enhanced informational access and cognitive development. The lowest score is assigned to *Learning to live together* ($\bar{x} = 4.7566$, $SD = 0.4457$), though still at a very high level. For **service work**, *Learning to do* is rated highest ($\bar{x} = 4.7368$, $SD = 0.5216$), suggesting strong emphasis on practical skill-building, while *Learning to be* is lowest ($\bar{x} = 4.6632$, $SD = 0.5743$).

The **PNI-modified values** indicate the most critical development need in **management work** is *Learning to do* (0.5416), followed by *Learning to live together* (0.4717), suggesting that both practical skill development and collaborative engagement are significant challenges under current social conditions. For **service work**, *Learning to do* also registers the highest PNI-modified value (0.4063), while

Learning to be presents the smallest gap (0.3263), suggesting this is an existing strength in socially-driven service provision.

In summary, the findings demonstrate that under **social environmental influences**, the most urgent development priority lies in enhancing the library's capacity to support **practical application of knowledge and interpersonal collaboration**, while its role in supporting individual growth (*Learning to be*) is perceived as relatively well-established.

Table 4.12 Analysis of Technological Factors Influencing Innovative Library Management and PNI-Modified Values Classified by Lifelong Learning Dimensions

Component / Lifelong Learning Dimension	Current situation (D)		Desired situation (I)		PNI-Modified Values (I-D/D)	Rank
	\bar{x}	SD	\bar{x}	SD		
Management work	3.7780	0.6645	4.6727	0.4703	0.2368	1
1. Learning to know	3.9342	0.6969	4.6447	0.4802	0.1806	4
2. Learning to do	3.5197	0.6405	4.6842	0.4664	0.3308	1
3. Learning to live together	3.7697	0.6248	4.6645	0.4737	0.2373	2
4. Learning to be	3.8882	0.6958	4.6974	0.4609	0.2081	3
Service work	3.8368	0.7481	4.7219	0.5158	0.2307	2
1. Learning to know	3.9789	0.7167	4.7544	0.4922	0.1949	4
2. Learning to do	3.5684	0.7597	4.7088	0.5201	0.3196	1
3. Learning to live together	3.8702	0.7877	4.7158	0.5307	0.2185	2
4. Learning to be	3.9298	0.7282	4.7088	0.5201	0.1982	3

Table 4.12 analyzes the impact of **technological factors** on innovative library management, classified according to the four lifelong learning dimensions and grouped by **management work** and **service work**. The table compares current and desired situations and presents PNI-modified values to identify areas of strategic priority.

In the **current condition**, both **management work** ($\bar{x} = 3.7780$, $SD = 0.6645$) and **service work** ($\bar{x} = 3.8368$, $SD = 0.7481$) are rated relatively high, suggesting that technological support for library operations and services is well-established. Within **management work**, *Learning to know* receives the highest mean score ($\bar{x} = 3.9342$, $SD = 0.6969$), reflecting effective access to and use of digital information resources. *Learning to do* is rated the lowest ($\bar{x} = 3.5197$, $SD = 0.6405$), indicating potential limitations in technology-enabled practical learning.

In **service work**, *Learning to know* is again rated highest ($\bar{x} = 3.9789$, $SD = 0.7167$), suggesting strong digital information services. *Learning to do* remains the lowest ($\bar{x} = 3.5684$, $SD = 0.7597$), consistent with findings in the management domain.

In the **desired condition**, expectations are uniformly high across all dimensions. For **management work**, the highest desired score is in *Learning to be* ($\bar{x} = 4.6974$, SD

$= 0.4609$), while *Learning to know* is the lowest ($\bar{x} = 4.6447$, $SD = 0.4802$). Similarly, in **service work**, *Learning to know* has the highest score ($\bar{x} = 4.7544$, $SD = 0.4922$), and *Learning to do* the lowest ($\bar{x} = 4.7088$, $SD = 0.5201$).

The **PNI-modified values** highlight that *Learning to do in management work* has the highest value (0.3308), indicating it as the most critical area for development within the technological context. Conversely, *Learning to know in service work* has the lowest PNI-modified value (0.1949), suggesting it is a relative strength and well-supported by current technological infrastructure.

In conclusion, while technology is generally well-integrated into innovative library management, the greatest development need lies in leveraging technology to support **hands-on, skills-based learning** (*Learning to do*), especially within administrative and strategic management functions. On the other hand, the library's capacity to provide **digital information access** (*Learning to know*) is viewed as a current strength, particularly in service delivery.

Table 4.13 Summary of Current and Desired Situations of Innovative Library Management Across External Environmental Factors by Lifelong Learning Dimensions

External Factor / Lifelong Learning Dimension	Current situation	Desired situation		
	\bar{x}	SD	\bar{x}	SD
Political factors	3.3870	0.7772	4.7260	0.4857
1. Learning to know	3.4899	0.8205	4.7333	0.4833
2. Learning to do	3.2629	0.7377	4.7191	0.4819
3. Learning to live together	3.3969	0.7571	4.7116	0.4940
4. Learning to be	3.3980	0.7932	4.7399	0.4837
Economic factors	3.7947	0.7238	4.7334	0.4806
1. Learning to know	3.8285	0.7154	4.7498	0.4609
2. Learning to do	3.7088	0.6790	4.7550	0.4650
3. Learning to live together	3.8346	0.7497	4.7046	0.5039
4. Learning to be	3.8066	0.7511	4.7239	0.4927
Social factors	3.3647	0.7405	4.7434	0.4900
1. Learning to know	3.3998	0.7573	4.7596	0.4748
2. Learning to do	3.2270	0.7109	4.7467	0.4836
3. Learning to live together	3.3636	0.7496	4.7441	0.5077
4. Learning to be	3.4684	0.7439	4.7230	0.4940
Technological factors	3.8074	0.7063	4.6973	0.4931
1. Learning to know	3.9566	0.7068	4.6996	0.4862
2. Learning to do	3.5441	0.7001	4.6965	0.4932
3. Learning to live together	3.8200	0.7062	4.6901	0.5022
4. Learning to be	3.9090	0.7120	4.7031	0.4905

Table 4.13 provides a comparative summary of the **current** and **desired** situations of innovative library management across four external environmental factors—**political, economic, social, and technological**—organized by the lifelong learning dimensions: *Learning to know, Learning to do, Learning to live together, and Learning to be*.

In the **current situation**, the highest average scores are observed under the **technological** ($\bar{x} = 3.8074$, $SD = 0.7063$) and **economic** ($\bar{x} = 3.7947$, $SD = 0.7238$) contexts, indicating that technological infrastructure and financial support for innovative library management are perceived as relatively robust. Conversely, **political** ($\bar{x} = 3.3870$) and **social** ($\bar{x} = 3.3647$) factors receive more moderate ratings, suggesting room for improvement in governance, policy support, and societal engagement.

When broken down by lifelong learning dimensions:

Under **political factors**, *Learning to know* is strongest ($\bar{x} = 3.4899$), while *Learning to do* is weakest ($\bar{x} = 3.2629$).

Under **economic factors**, *Learning to know* leads ($\bar{x} = 3.8285$), whereas *Learning to do* is lowest ($\bar{x} = 3.7088$).

Under **social factors**, *Learning to be* is rated highest ($\bar{x} = 3.4684$), with *Learning to do* again at the lowest level ($\bar{x} = 3.2270$).

Under **technological factors**, *Learning to know* ranks highest ($\bar{x} = 3.9566$), while *Learning to do* has the lowest score ($\bar{x} = 3.5441$).

In the **desired situation**, expectations are consistently high across all dimensions and environmental contexts. The highest expectations are found in:

Learning to be under **political factors** ($\bar{x} = 4.7399$),
Learning to do under **economic factors** ($\bar{x} = 4.7550$),
Learning to know under **social factors** ($\bar{x} = 4.7596$),
Learning to be under **technological factors** ($\bar{x} = 4.7031$).

These findings indicate a strong desire for the library to enhance its support for all aspects of lifelong learning, particularly **practical application of knowledge (Learning to do)** and **personal development (Learning to be)**, across multiple external influences.

Overall, while the **technological** and **economic** contexts are currently more favorable, stakeholders place strong emphasis on improving the **social** and **political** environments to ensure holistic development of lifelong learning capabilities within innovative library systems.

Table 4.14 Summary of PNI-Modified Values of Lifelong Learning Dimensions Influenced by External Environmental Factors

Lifelong Learning Dimension	Current situation (D)		Desired situation (I)		PNI-Modified Values (I-D/D)	Rank
	\bar{x}	SD	\bar{x}	SD		
1. Learning to know	3.6687	0.7500	4.7356	0.4763	0.2908	4
2. Learning to do	3.4357	0.7069	4.7293	0.4809	0.3765	1
3. Learning to live together	3.6038	0.7407	4.7126	0.5019	0.3077	2
4. Learning to be	3.6455	0.7500	4.7225	0.4902	0.2954	3

Table 4.14 presents a synthesized comparison of **PNI-modified values** for the four **lifelong learning dimensions**—*Learning to know*, *Learning to do*, *Learning to live together*, and *Learning to be*—under the influence of external environmental factors. These values reflect the relative need for development and improvement in each dimension as perceived by respondents.

Among the lifelong learning dimensions, **Learning to do** has the highest PNI-modified value (0.3765), indicating it as the most critical area for improvement within the context of external environmental support. This suggests that current external conditions—such as policies, economic incentives, societal norms, and technological infrastructure—are not yet fully conducive to promoting practical, skill-based learning in library settings.

This is followed by:

Learning to live together (PNI-modified = 0.3077), highlighting the need to strengthen the library's role in fostering collaboration, empathy, and social inclusion.

Learning to be (PNI-modified = 0.2954), which relates to personal development and self-realization.

Learning to know (PNI-modified = 0.2908), which receives the lowest value, indicating that access to knowledge and informational resources is relatively well-supported by the current external environment.

In summary, the results underscore the need for targeted improvements in how **external environmental factors** facilitate experiential, interpersonal, and transformative learning. Among these, **applied learning (Learning to do)** stands out as the top priority for strategic development in innovative library management.

4.2 Interpretation of the Condition and Strategic Implications Derived from the Calculated PNI-Modified Values

This section interprets the results of the PNI-modified analysis presented in the previous section, with the aim of identifying strategic priorities for the development of innovative library management within the framework of lifelong learning.

To facilitate interpretation, the PNI-modified values for each indicator were analyzed and systematically grouped based on the magnitude of the gap between current and desired conditions. The grouping procedure involved calculating the midpoint range by subtracting the lowest PNI-modified value from the highest, then dividing the difference by two to determine the threshold for classification.

The classification is defined as follows:

High PNI-modified group:

Values greater than or equal to

$Highest\ PNI-modified - (Highest - Lowest\ PNI-modified)/2$

Low PNI-modified group:

Values less than

$Highest\ PNI-modified - (Highest - Lowest\ PNI-modified)/2$

This grouping enables the identification of strategic weaknesses and strengths:

Indicators with high PNI-modified values represent areas with the greatest discrepancy between current and desired states, thus signaling developmental weaknesses that require urgent strategic intervention.

Conversely, indicators with low PNI-modified values reflect areas where current practices closely align with stakeholder expectations, thereby indicating relative strengths in innovative library management.

By applying this classification, the study offers targeted insights into which components of library management should be prioritized for improvement and which represent existing capabilities that can be leveraged to support the promotion of lifelong learning.

4.2.1 Interpretation of PNI-Modified Values for Internal Management Variables

This subsection interprets the internal management conditions of innovative library operations by classifying variables according to their PNI-modified values. The classification process is based on the comparison between current and desired states of each variable, enabling the identification of strategic weaknesses and strengths within the internal environment.

The calculated PNI-modified values for each management variable are presented in Table 4.15. To facilitate interpretation, variables were grouped based on the midpoint of the range between the highest and lowest PNI-modified values:

$$\text{Grouping range} = (0.5792 - 0.2405) / 2 = 0.1694$$

Accordingly, the classification is defined as follows:

High PNI-modified group (0.4099–0.5792): Variables in this range indicate significant gaps between the current and desired conditions and are interpreted as strategic weaknesses requiring targeted improvement.

Low PNI-modified group (0.2405–0.4098): Variables in this range reflect smaller gaps and are interpreted as strategic strengths that align more closely with expectations and can be leveraged to support lifelong learning objectives.

This classification offers insight into which internal components of innovative library management—such as planning, human resource management, directing, or service delivery—require developmental focus and which represent existing organizational competencies.

Table 4.15 Classification of Internal Management Variables Based on PNI-Modified Values Justification for Revision

Internal Management Variable	PNI-Modified Values (I-D/D)	Rank	Condition
1. Management work	0.4184	1	Weakness
1) Planning	0.2854	7	Strength
2) Organizing	0.5349	2	Weakness
3) Human resource management	0.5792	1	Weakness
4) Directing	0.5111	3	Weakness
5) Coordinating	0.4881	5	Weakness
6) Reporting	0.5106	4	Weakness
7) Budgeting	0.2863	6	Strength
8) Information resource management	0.2405	8	Strength
2. Service work	0.3410	2	Strength
1) Information service	0.2993	3	Strength
2) Research service	0.5014	1	Weakness
3) Space service	0.3283	2	Strength
4) Educational training	0.2586	4	Strength

Table 4.15 presents the interpretation of **secondary internal variables** related to innovative library management, based on their **PNI-modified values**. These values measure the extent of discrepancy between current and desired conditions, thereby providing a framework for classifying variables as either **strategic weaknesses** or **strategic strengths**.

Among the management work components, the **highest PNI-modified value** is observed in **Human Resource Management** (0.5792), indicating a significant developmental gap and classifying it as a critical **weakness**. Other areas of weakness include **Organizing** (0.5349), **Directing** (0.5111), **Reporting** (0.5106), and **Coordinating** (0.4881). These results suggest that internal administrative and operational processes require substantial attention to improve alignment with the desired standards of lifelong learning support.

On the other hand, variables such as **Information Resource Management** (0.2405), **Planning** (0.2854), and **Budgeting** (0.2863) exhibit lower PNI-modified values and are therefore classified as **strengths**, indicating that these functions are relatively well-aligned with stakeholder expectations.

In terms of **service work**, the highest PNI-modified value is found in **Research Service** (0.5014), marking it as a **weakness** and a key priority for improvement. In contrast, **Information Service** (0.2993), **Space Service** (0.3283), and **Educational Training** (0.2586) are identified as **strengths**, reflecting satisfactory performance in these areas.

These classifications offer actionable insights for strategic planning. While core functions such as information services and budgeting are relatively well-managed, the

findings highlight critical challenges in **human resource capacity, research facilitation, and operational coordination** that require targeted development in order to elevate the overall effectiveness of innovative library management in promoting lifelong learning.

In the overall innovative library management, the PNI-modified values of management work and service work calculated based on the current and desired situations are as Table 4.16.

The overall first-level variable calculation grouping is as follows:

$$\text{Grouping range} = (0.4184 - 0.3410) / 2 = 0.0387$$

The study was divided into two groups based on the corrected mean distance as follows:

The group with a high PNI-modified value equals 0.3797 - 0.4184 (Weakness).

The group with a low PNI-modified value equals 0.3410 - 0.3796 (Strength).

Table 4.16 Summary of Primary Internal Management Variables Classified by PNI-Modified Values Justification for Revision

Primary Management Component	PNI-Modified Values (I-D/D)	Rank	Condition
1. Management work	0.4184	1	Weakness
2. Service work	0.3410	2	Strength

Table 4.16 presents a summary classification of the **primary internal management dimensions**—**Management Work** and **Service Work**—based on their **PNI-modified values**, which quantify the relative need for development by assessing the gaps between current and desired conditions.

The **PNI-modified value** for **Management Work** is **0.4184**, the highest among the two dimensions, indicating a substantial discrepancy between existing practices and stakeholder expectations. As such, **Management Work** is classified as a **strategic weakness**, suggesting that this area demands urgent attention in order to improve administrative planning, human resource deployment, and operational coordination within innovative library management.

In contrast, **Service Work** has a lower PNI-modified value of **0.3410**, which places it within the range of a **strategic strength**. This implies that the library's service-oriented functions—such as user support, educational training, and spatial services—are more closely aligned with desired conditions and demonstrate greater organizational effectiveness in supporting lifelong learning.

This high-level classification offers clear strategic guidance: while service delivery within the library system is functioning well, **core management systems require targeted development** to strengthen their capacity to support and sustain innovative, lifelong learning-focused services.

4.2.2 Interpretation of PNI-Modified Values for Lifelong Learning Dimensions within the Internal Environment

This subsection interprets the internal condition of innovative library management through the lens of lifelong learning dimensions, treating them as dependent variables. The analysis is based on PNI-modified values, which measure the gap between the current and desired states of each dimension—*Learning to know*, *Learning to do*, *Learning to live together*, and *Learning to be*—in order to assess their strategic significance.

The PNI-modified values for each lifelong learning dimension, calculated from the survey responses, are presented in Table 4.17. These values serve as indicators of where improvements are most needed to align innovative library practices with the goals of lifelong learning.

To classify the results, the midpoint range was calculated using the following formula:

$$\text{Grouping range} = (0.5264 - 0.2940) / 2 = 0.1162$$

Based on this grouping threshold, the classification is as follows:

High PNI-modified group (0.4102–0.5264): Dimensions falling within this range are considered strategic weaknesses, reflecting substantial gaps between current practices and stakeholder expectations.

Low PNI-modified group (0.2940–0.4101): Dimensions in this range are considered strategic strengths, indicating closer alignment between actual performance and the desired state.

This classification enables the identification of which aspects of lifelong learning require intensified managerial efforts—particularly those where skill development (*Learning to do*) and social collaboration (*Learning to live together*) lag behind expectations—and which dimensions (*Learning to know* and *Learning to be*) demonstrate relative institutional strength in the internal environment of innovative library management.

Table 4.17 Classification of Lifelong Learning Dimensions within the Internal Environment Based on PNI-Modified Values

Component / Lifelong Learning Dimension	PNI-Modified Values (I-D/D)	Rank	Condition
Management work	0.4184	1	Weakness
1. Learning to know	0.3589	4	Strength
2. Learning to do	0.5264	1	Weakness
3. Learning to live together	0.4160	2	Weakness
4. Learning to be	0.3830	3	Strength
Service work	0.1693	2	Strength
1. Learning to know	0.2940	4	Strength
2. Learning to do	0.4164	1	Weakness
3. Learning to live together	0.3343	2	Strength
4. Learning to be	0.3251	3	Strength

Table 4.17 presents the interpretation of lifelong learning dimensions as they relate to **Management Work** and **Service Work** within the **internal environment** of innovative library management. Using PNI-modified values, the table classifies each dimension as either a **strategic strength** or a **strategic weakness**, based on the gap between the current and desired conditions.

Management Work

In the context of management work, the dimension with the **highest PNI-modified value** is **Learning to do** (0.5264), indicating a substantial need for improvement and classifying it as a **strategic weakness**. This reflects insufficient capacity in applying knowledge to practice—an essential component of effective library management aligned with lifelong learning.

Other weaknesses in this domain include **Learning to live together** (0.4160), suggesting that collaboration and interpersonal engagement are also areas needing development. Conversely, **Learning to be** (0.3830) and **Learning to know** (0.3589) are identified as **strengths**, indicating relatively well-aligned practices that promote personal growth and knowledge acquisition.

Service Work

For service work, **Learning to do** again shows the highest PNI-modified value (0.4164), marking it as a **strategic weakness**, similar to its role in management. This underscores a recurring challenge in translating learning into practical services and actions across both domains.

The remaining dimensions—**Learning to live together** (0.3343), **Learning to be** (0.3251), and **Learning to know** (0.2940)—fall within the **strength** category, reflecting effective service practices that promote social interaction, self-development, and access to knowledge.

Overall Implication

This classification reveals a consistent pattern across both domains: **Learning to do** emerges as the most critical area in need of development within the internal environment. Meanwhile, **Learning to know** and **Learning to be** are recurring strengths, suggesting a solid foundation for knowledge facilitation and individual learner development within the current library framework.

These insights are essential for strategic planning, as they highlight where resource allocation, training, and process redesign should be prioritized to strengthen the alignment between library management practices and the lifelong learning paradigm.

The research summarizes the PNI-modified values and groupings of lifelong learning in the internal environment.

The overall variable calculation grouping is as follows:

$$\text{Grouping range} = (0.4690 - 0.3254) / 2 = 0.0718$$

The study was divided into two groups based on the corrected mean distance as follows:

The group with high PNI-modified values are equal to 0.3972 - 0.4690 (Weakness).

The group with low PNI-modified values are equal to 0.3254 - 0.3971 (Strength).

Table 4.18 Summary of Lifelong Learning Dimensions within the Internal Environment Classified by PNI-Modified Values

Lifelong Learning Dimension	PNI-Modified Values (I-D/D)	Rank	Condition
1. Learning to know	0.3254	4	Strength
2. Learning to do	0.4690	1	Weakness
3. Learning to live together	0.3737	2	Strength
4. Learning to be	0.3533	3	Strength

Table 4.18 presents a **summarized classification** of the four lifelong learning dimensions—*Learning to know*, *Learning to do*, *Learning to live together*, and *Learning to be*—based on their **PNI-modified values** within the **internal environment** of innovative library management. This analysis provides a consolidated view across both management and service functions, facilitating the identification of strategic priorities.

Among the dimensions, **Learning to do** has the **highest PNI-modified value** (0.4690), classifying it as a **strategic weakness**. This result highlights a critical area for development, indicating that the current internal management and service practices do not sufficiently support the practical application of knowledge or skill development—an essential pillar of lifelong learning.

The remaining dimensions fall within the **strategic strength** category:

Learning to live together (0.3737) shows a moderate gap, reflecting relatively effective support for social interaction and collaboration, though still with room for improvement.

Learning to be (0.3533) suggests that the library's internal environment provides a solid foundation for fostering personal growth and autonomy.

Learning to know (0.3254) has the lowest PNI-modified value, indicating that access to and support for knowledge acquisition is a well-established strength in the current management framework.

Overall, this summary underscores the need to prioritize improvements in **Learning to do**, while maintaining and further enhancing existing strengths in **Learning to know**, **Learning to be**, and **Learning to live together**. These insights provide a clear direction for internal capacity-building strategies aimed at strengthening the alignment between library operations and lifelong learning objectives.

4.2.3 Interpretation of PNI-Modified Values for Lifelong Learning Dimensions Influenced by External Environmental Factors

This subsection presents an interpretation of the impact of external environmental variables on lifelong learning dimensions within innovative library management. The analysis evaluates how external factors—including political, economic, social, and technological influences—affect the alignment between current and desired conditions, using PNI-modified values as indicators of strategic opportunities and threats.

The grouping of indicators is based on the magnitude of the gap between perceived current and ideal states. Higher PNI-modified values reflect greater misalignment and are thus considered threats, while lower values indicate more favorable conditions and are interpreted as opportunities.

The first dimension analyzed is the political environment. The PNI-modified values for political-related indicators, derived from the comparison of current and desired conditions, are presented in Table 4.19.

To facilitate interpretation, a grouping threshold was calculated using the formula:

$$\text{Grouping range} = (0.4990 - 0.2863) / 2 = 0.1064$$

Based on this calculation, the indicators are classified as follows:

High PNI-modified group (0.3926–0.4990): Indicators in this range are considered threats, as they reflect substantial gaps that may hinder the promotion of lifelong learning under political constraints.

Low PNI-modified group (0.2863–0.3925): Indicators in this range are interpreted as opportunities, representing conditions in which current practices are relatively well-aligned with desired expectations.

This classification provides insight into how political factors either constrain or support the effectiveness of innovative library management in advancing lifelong learning objectives. The same interpretive framework is subsequently applied to economic, social, and technological factors in the following subsections to develop a comprehensive understanding of external strategic conditions.

Table 4.19 Classification of Lifelong Learning Dimensions under Political Factors Based on PNI-Modified Values

Component / Lifelong Learning Dimension	PNI-Modified Values (I-D/D)	Rank	Condition
1.1 Management work	0.4580	1	Threat
1. Learning to know	0.4343	4	Threat
2. Learning to do	0.4990	1	Threat
3. Learning to live together	0.4474	3	Threat
4. Learning to be	0.4527	2	Threat
1.2 Service work	0.3377	2	Opportunity
1. Learning to know	0.2863	4	Opportunity
2. Learning to do	0.3967	1	Threat
3. Learning to live together	0.3317	3	Opportunity
4. Learning to be	0.3413	2	Opportunity

Table 4.19 analyzes the influence of **political factors** on the implementation of lifelong learning within innovative library management. The analysis distinguishes between **management work** and **service work**, evaluating the current and desired

conditions through **PNI-modified values**. These values are used to classify each indicator as either a **strategic threat** or an **opportunity**, based on the degree of misalignment between present performance and stakeholder expectations.

Management Work under Political Factors:

All lifelong learning dimensions in this domain are classified as **threats**, indicating significant developmental gaps. The highest PNI-modified value is found in **Learning to do** (0.4990), suggesting that the application of knowledge in practice is particularly hindered by political constraints—such as policy ambiguity, insufficient support, or regulatory limitations.

Other dimensions also show high PNI-modified values:

- Learning to be** (0.4527)
- Learning to live together** (0.4474)
- Learning to know** (0.4343)

These results reveal that current political conditions do not adequately support management functions required to promote self-development, collaboration, and knowledge dissemination in alignment with lifelong learning goals.

Service Work under Political Factors:

In contrast to management work, service-related functions show a mix of **threats and opportunities**. The only dimension classified as a **threat** is **Learning to do** (0.3967), reflecting moderate misalignment in the ability to support practical skill-building through services in politically influenced environments.

The other three dimensions—**Learning to know** (0.2863), **Learning to live together** (0.3317), and **Learning to be** (0.3413)—are classified as **opportunities**, indicating more favorable alignment with the desired conditions. These results suggest that political support is more effective in enabling library services that promote access to information, social learning, and personal development, even if challenges persist in applied learning.

Secondly, the research analyzed the impact of the economy on the external environment.

The PNI-modified values calculated based on the current and desired situations are shown in Table 4.20.

The variable calculation grouping is as follows:

$$\text{Grouping range} = (0.2879 - 0.2033) / 2 = 0.0423$$

The study was divided into two groups based on the corrected mean distance as follows:

The group with a high PNI-modified value equals 0.2456 - 0.2879 (Threat).

The group with a low PNI-modified value equals 0.2033 - 0.2455 (Opportunity).

Table 4.20 Classification of Lifelong Learning Dimensions under Economic Factors Based on PNI-Modified Values

Component / Lifelong Learning Dimension	PNI-Modified Values (I-D/D)	Rank	Condition
2.1 Management work	0.2628	1	Threat
1. Learning to know	0.2595	3	Threat

Component / Lifelong Learning Dimension	PNI-Modified Values (I-D/D)	Rank	Condition
2. Learning to do	0.2764	1	Threat
3. Learning to live together	0.2509	4	Threat
4. Learning to be	0.2647	2	Threat
2.2 Service work	0.2320	2	Opportunity
1. Learning to know	0.2218	2	Opportunity
2. Learning to do	0.2879	1	Threat
3. Learning to live together	0.2033	4	Opportunity
4. Learning to be	0.2173	3	Opportunity

Table 4.20 presents an analysis of the **impact of economic factors** on the implementation of lifelong learning within the framework of innovative library management. As in previous analyses, the classification distinguishes between **management work** and **service work**, using **PNI-modified values** to determine whether each lifelong learning dimension represents a **strategic threat** (high developmental gap) or an **opportunity** (low developmental gap).

Management Work under Economic Factors:

All four lifelong learning dimensions in this domain are classified as **threats**, indicating that economic conditions do not currently provide sufficient support for the internal managerial functions required to fully realize lifelong learning goals.

The highest PNI-modified value is seen in **Learning to do** (0.2764), followed by:

Learning to be (0.2647)

Learning to know (0.2595)

Learning to live together (0.2509)

These results suggest that economic constraints such as limited funding, inadequate investment in training and development, or insufficient incentives for professional growth may hinder the practical application of knowledge, personal development, and collaborative leadership within library management.

Service Work under Economic Factors:

In contrast, most lifelong learning dimensions in service work are classified as **opportunities**, with the exception of **Learning to do** (0.2879), which is identified as a **threat**. This finding highlights a specific area where economic limitations continue to obstruct the delivery of hands-on, skill-based services to users.

The remaining dimensions—**Learning to know** (0.2218), **Learning to live together** (0.2033), and **Learning to be** (0.2173)—are classified as **opportunities**, indicating that despite economic limitations, the library's service functions are relatively well-positioned to support informational access, community learning, and individual development.

Thirdly, the research analyzed the impact of society on the external environment.

The PNI-modified values calculated based on the current and desired situations are shown in Table 4.21.

The variable calculation grouping is as follows:

$$\text{Grouping range} = (0.5416 - 0.3263) / 2 = 0.1077$$

The research was divided into two groups based on the corrected mean distance as follows:

The group with a high PNI-modified value equals 0.4339 - 0.5416 (Threat).

The group with a low PNI-modified value equals 0.3263 - 0.4338 (Opportunity).

Table 4.21 Classification of Lifelong Learning Dimensions under Social Factors Based on PNI-Modified Values

Component / Lifelong Learning Dimension	PNI-Modified Values (I-D/D)	Rank	Condition
3.1 Management work	0.4672	1	Threat
1. Learning to know	0.4648	3	Threat
2. Learning to do	0.5416	1	Threat
3. Learning to live together	0.4717	2	Threat
4. Learning to be	0.3981	4	Opportunity
3.2 Service work	0.3559	2	Opportunity
1. Learning to know	0.3400	3	Opportunity
2. Learning to do	0.4063	1	Opportunity
3. Learning to live together	0.3532	2	Opportunity
4. Learning to be	0.3263	4	Opportunity

Table 4.21 presents an analysis of how **social factors** affect the development and implementation of lifelong learning within innovative library management. The table classifies lifelong learning dimensions into **strategic threats** and **opportunities** based on **PNI-modified values**, with a distinction between **management work** and **service work**.

Management Work under Social Factors:

All lifelong learning dimensions in this domain are classified as **threats**, indicating substantial developmental gaps between the current and desired conditions. The highest PNI-modified value is found in **Learning to do** (0.5416), suggesting that the social environment is currently inadequate for supporting the application of knowledge in practical, managerial contexts.

Other dimensions also register high values:

Learning to live together (0.4717)

Learning to know (0.4648)

Learning to be (0.3981)

While **Learning to be** has a slightly lower value, it still borders the threat threshold, underscoring the need for improved social support systems (e.g., workplace culture, collaborative norms, and societal attitudes) to enhance managerial functions related to lifelong learning.

Service Work under Social Factors:

Unlike management work, all four lifelong learning dimensions in service work are classified as **opportunities**, showing lower PNI-modified values. These results suggest that the social environment is relatively supportive of the library's outward-facing service functions.

The values are as follows:

- Learning to do** (0.4063) – lowest of the threats
- Learning to live together** (0.3532)
- Learning to know** (0.3400)
- Learning to be** (0.3263)

These findings indicate that services promoting skill application, social interaction, information access, and personal development are generally well-aligned with societal expectations and needs.

Strategic Implication:

The interpretation of Table 4.21 reveals a pronounced divide between internal and external alignment under social factors. While **service delivery** is well-supported by the social environment, **management functions** face significant constraints. Strategic emphasis should be placed on enhancing internal culture, leadership collaboration, and socially responsive managerial practices—particularly in **Learning to do**—to bridge existing gaps and strengthen the institution's holistic alignment with lifelong learning objectives.

Fourthly, the research analyzed the impact of technology on the external environment.

The PNI-modified values calculated based on the current and desired situations are shown in Table 4.24.

The variable calculation grouping is as follows:

$$\text{Grouping range} = (0.3308 - 0.1806) / 2 = 0.0751$$

The research was divided into two groups based on the corrected mean distance as follows:

The group with a high PNI-modified value equals 0.2557 - 0.3308 (Threat).

The group with a low PNI-modified value equals 0.1806 - 0.2556 (Opportunity).

Table 4.22 Classification of Lifelong Learning Dimensions under Technological Factors Based on PNI-Modified Values

Component / Lifelong Learning Dimension	PNI-Modified Values (I-D/D)	Rank	Condition
4.1 Management work	0.2368	1	Threat
1. Learning to know	0.1806	4	Opportunity

Component / Lifelong Learning Dimension	PNI-Modified Values (I-D/D)	Rank	Condition
2. Learning to do	0.3308	1	Threat
3. Learning to live together	0.2373	2	Opportunity
4. Learning to be	0.2081	3	Opportunity
4.2 Service work	0.2307	2	Opportunity
1. Learning to know	0.1949	4	Opportunity
2. Learning to do	0.3196	1	Threat
3. Learning to live together	0.2185	2	Opportunity
4. Learning to be	0.1982	3	Opportunity

Table 4.22 presents an analysis of how **technological factors** affect the promotion of lifelong learning in the context of innovative library management. The table distinguishes between **management work** and **service work**, classifying lifelong learning dimensions based on **PNI-modified values** as either **strategic threats** (high developmental gap) or **opportunities** (low developmental gap).

Management Work under Technological Factors:

Among the four lifelong learning dimensions, **Learning to do** (PNI-modified = 0.3308) is the only one classified as a **threat**, indicating that current technological support is insufficient for enabling the application of knowledge in practical, management-level contexts. This suggests limitations in the use of digital tools for managerial decision-making, project execution, or professional development.

The remaining dimensions—**Learning to know** (0.1806), **Learning to live together** (0.2373), and **Learning to be** (0.2081)—are all classified as **opportunities**, reflecting stronger alignment between current conditions and expectations. These lower values indicate that technology is more effectively integrated into functions such as information access, collaboration, and personal development within management work.

Service Work under Technological Factors:

A similar pattern emerges in service-related functions. **Learning to do** again has the highest PNI-modified value (0.3196) and is the only dimension considered a **threat**, highlighting a persistent gap in technology-enabled service applications such as hands-on training, digital simulations, or interactive learning experiences.

Conversely, the other three dimensions are classified as **opportunities**:

Learning to know (0.1949)

Learning to live together (0.2185)

Learning to be (0.1982)

These values reflect the relatively strong performance of library services in providing access to digital resources, promoting virtual collaboration, and supporting user-centered development through technology.

Strategic Implication:

The findings suggest that while **technology is well-integrated into informational and collaborative functions**, there is a pressing need to enhance its role in **supporting experiential and skill-based learning (Learning to do)**. This gap is consistent across both management and service domains. Strategic efforts should therefore focus on adopting and scaling interactive, applied technologies—such as learning management systems, digital content creation platforms, and virtual learning tools—to improve the library's capacity to foster lifelong learning in the digital age.

Finally, the research provided a comprehensive analysis of the impact of the external environment on lifelong learning.

The PNI-modified values calculated based on the current and desired situations are shown in Table 4.23.

The overall variable calculation grouping is as follows:

$$\text{Grouping range} = (0.3765 - 0.2908) / 2 = 0.0429$$

The study was divided into two groups based on the corrected mean distance as follows:

The group with a high PNI-modified value equals 0.3336 - 0.3765 (Threat).

The group with a low PNI-modified value equals 0.2908 - 0.3335 (Opportunity).

Table 4.23 Overall Classification of Lifelong Learning Dimensions Influenced by External Environmental Factors Based on PNI-Modified Values

Lifelong Learning Dimension	PNI-Modified Values (I-D/D)	Rank	Condition
1. Learning to know	0.2908	4	Opportunity
2. Learning to do	0.3765	1	Threat
3. Learning to live together	0.3077	2	Opportunity
4. Learning to be	0.2954	3	Opportunity

Table 4.23 presents a **comprehensive analysis** of the four **lifelong learning dimensions**—*Learning to know*, *Learning to do*, *Learning to live together*, and *Learning to be*—based on their **PNI-modified values** across all external environmental factors (political, economic, social, and technological). The goal is to identify which dimensions present the greatest **strategic threats** (i.e., highest developmental gaps) and which represent **opportunities** for reinforcement or leverage.

Among the dimensions, **Learning to do** exhibits the **highest PNI-modified value** (0.3765), classifying it as a **strategic threat**. This indicates a notable gap between current conditions and stakeholder expectations in terms of facilitating practical, skill-based learning across political, economic, social, and technological environments. It highlights a critical need for systemic improvements to support applied learning.

The remaining three dimensions—**Learning to live together** (0.3077), **Learning to be** (0.2954), and **Learning to know** (0.2908)—are all classified as **strategic opportunities**. These values suggest that external environmental conditions are more conducive to promoting collaboration, personal growth, and knowledge acquisition, respectively.

Strategic Implication:

This aggregated analysis reinforces a consistent finding across prior tables: **Learning to do** remains the most vulnerable dimension under external environmental conditions, warranting focused intervention. Policymakers, administrators, and library leaders should prioritize improvements in the external support systems (e.g., funding models, policy frameworks, digital tools) that facilitate **hands-on, action-oriented learning**.

At the same time, the relatively lower gaps in **Learning to know**, **Learning to be**, and **Learning to live together** provide a foundation of strength that can be further built upon to create a more comprehensive and balanced lifelong learning environment.

The overall variable of external environment calculation grouping is as follows:

$$\text{Grouping range} = (0.4098 - 0.2337) / 2 = 0.0881$$

The analysis was divided into two groups based on the corrected mean distance as follows:

The group with a high PNI-modified value equals 0.3217 - 0.4098 (Threat).

The group with a low PNI-modified value equals 0.2337 - 0.3216 (Opportunity).

Table 4.24 Overall Classification of External Environmental Factors Based on PNI-Modified Values

External Environmental Factor	PNI-Modified Values (I-D/D)	Rank	Condition
1. Politics	0.3953	2	Threat
2. Economy	0.2390	3	Opportunity
3. Society	0.4098	1	Threat
4. Technology	0.2337	4	Opportunity

Table 4.24 presents a consolidated classification of the four **external environmental factors**—*Politics, Economy, Society, and Technology*—based on their **PNI-modified values**. These values measure the gap between current and desired conditions and are used to determine whether each factor constitutes a **strategic threat** or an **opportunity** for innovative library management in the context of lifelong learning.

Among the factors, **Society** holds the **highest PNI-modified value** (0.4098), followed closely by **Politics** (0.3953). Both are classified as **strategic threats**, indicating substantial gaps between current societal and political support structures and the ideal conditions needed to promote lifelong learning through innovative library systems. These findings suggest that societal engagement mechanisms and political frameworks are not yet adequately aligned with the evolving roles of libraries in education and skill development.

In contrast, **Economy** (0.2390) and **Technology** (0.2337) are classified as **strategic opportunities**, as they exhibit lower PNI-modified values, reflecting better alignment with desired conditions. These results imply that libraries are operating in relatively favorable economic and technological environments, with sufficient infrastructure and financial support in place to support many of their lifelong learning initiatives.

Strategic Implication:

This final classification underscores the importance of **targeted policy reform** and **community engagement strategies** to address the broader social and political limitations currently hindering library development. Simultaneously, **economic and technological strengths** should be capitalized on to accelerate progress in areas such as digital literacy, resource accessibility, and innovative programming.

In summary, while economic and technological conditions offer a strong foundation for growth, strategic attention must be directed toward **bridging political and societal gaps** to ensure a well-rounded, externally supported lifelong learning ecosystem through innovative library management.

Tables 4.24 indicates that among the four external environmental factors, 'Society' has the highest PNI-modified value (0.4098), indicating a threat, while 'Technology' has the lowest (0.2337), indicating an opportunity. Grouping shows that 'Politics' (0.3953) and 'Society' (0.4098) are threats, while 'Economy' (0.2390) and 'Technology' (0.2337) are opportunities, as illustrated in Figure 4.1.

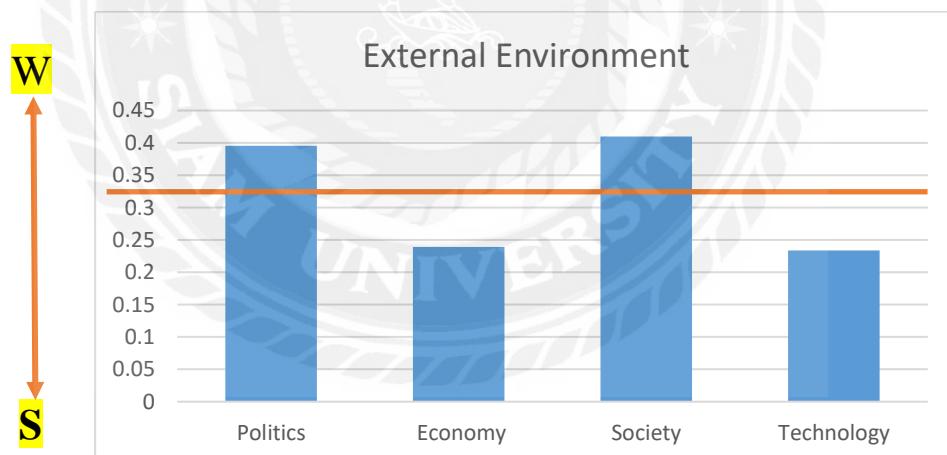


Figure 4.1 Visual summary of SWOT analysis for innovative library management

4.3 Development of Management Strategies of the Innovative Library Based on the Concept of Lifelong Learning

The development of management strategies of the innovative library based on the concept of lifelong learning consisted of four steps:

4.3.1 Draft Management Strategies of the Innovative Library Based on the Concept of Lifelong Learning

The research first conducted an overall SWOT analysis and TOWS matrix of the internal and external environment based on the results of the previous section.

Based on the results of the data analysis in the previous section, the researcher conducted a SWOT analysis to summarize the strengths, weaknesses, opportunities, and threats of innovative library management based on lifelong learning.

According to the analysis results in Table 4.17 (Regarding S and W), and Table 4.19 to Table 4.22 (Regarding O and T), the condition of each variable in this study was obtained and ranked in ascending order according to the PNI-modified value. The details are shown in Table 4.25.

Table 4.25 SWOT Analysis of the Innovative Library Management Based on Lifelong Learning

	Strengths (S)	Weaknesses (W)
Internal Environment	<p>Service work (0.3410)</p> <p>1. Classified analysis by independent variables:</p> <p>1.1 Educational training (0.2586) 1.2 Information service (0.2993) 1.3 Space service (0.3283)</p> <p>2. Classified analysis by dependent variable:</p> <p>2.1 Learning to know (0.2940) S1 2.2 Learning to be (0.3251) S2 2.3 Learning to live together (0.3343) S3</p> <p>Management work (0.4184)</p> <p>1. Classified analysis by independent variables:</p> <p>1.1 Information resource management (0.2405) 1.2 Planning (0.2854) 1.3 Budgeting (0.2863)</p> <p>2. Classified analysis by dependent variable:</p> <p>2.1 Learning to know (0.3589) S4 2.2 Learning to be (0.3830) S5</p>	<p>Management work (0.4184)</p> <p>1. Classified analysis by independent variables:</p> <p>1.1 Human resourcing management (0.5792) 1.2 Organizing (0.5349) 1.3 Directing (0.5111) 1.1.4 Reporting (0.5106) 1.1.5 Coordinating (0.4881)</p> <p>2. Classified analysis by dependent variable:</p> <p>2.1 Learning to do (0.5264) W1 2.2 Learning to live together (0.4160) W3</p> <p>Service work (0.3410)</p> <p>1. Classified analysis by independent variables:</p> <p>1.1 Research service (0.5014)</p> <p>2. Classified analysis by dependent variable:</p> <p>2.1 Learning to do (0.4164) W2</p>

	Opportunities (O)	Threats (T)
External Environment	<p>Technology (0.2337) Service work (0.2307)</p> <p>1. Learning to know (0.1949) O2 2. Learning to be (0.1982) O3 3. Learning to live together (02185) O7</p> <p>Management work (0.2368)</p> <p>1. Learning to know (0.1806) O1 2. Learning to be (0.2081) O5 3. Learning to live together (02373) O9</p> <p>Economy (0.2390) Service work (0.2320)</p> <p>1. Learning to live together (0.2033) O4 2. Learning to be (0.2173) O6 3. Learning to know (0.2218) O8</p> <p>Management work (0.2628) Learning to live together (0.2509) O10</p> <p>Politics (0.3953) Service work (0.3377)</p> <p>1. Learning to know (0.2863) O11 2. Learning to live together (0.3317) O13 3. Learning to be (0.3413) O15</p> <p>Society (0.4098) Service work (0.3559)</p> <p>1. Learning to be (0.3263) O12 2. Learning to know (0.3400) O14 3. Learning to live together (0.3532) O16 4. Learning to do (0.4063) O18</p> <p>Management work (0.4672) Learning to be (0.3981) O17</p>	<p>Society (0.4098) Management work (0.4672)</p> <p>1. Learning to do (0.5416) T1 2. Learning to live together (0.4717) T3 3. Learning to know (0.4648) T4</p> <p>Politics (0.3953) Management work (0.4580)</p> <p>1. Learning to do (0.4990) T2 2. Learning to be (0.4527) T5 3. Learning to live together (0.4474) T6 4. Learning to know (0.4343) T7</p> <p>Service work (0.3377) Learning to do (0.3967) T8</p> <p>Economy (0.2390) Management work (0.2628)</p> <p>1. Learning to do (0.2764) T12 2. Learning to be (0.2647) T13 3. Learning to know (0.2595) T14</p> <p>Service work (0.2320) Learning to do (0.2879) T11</p> <p>Technology (0.2337) Management work (0.2368) Learning to do (0.3308) T9</p> <p>Service work (0.2307) Learning to do (0.3196) T10</p>

As shown in Table 4.25, internal environment analysis classified by independent variables reveals that:

Information resource management, Planning, and Budgeting are strengths in promoting lifelong learning in management work.

Human resource management, Organizing, Directing, Reporting, and Coordinating are weaknesses in promoting lifelong learning in management work.

Educational training, Information service, and Space service are strengths in promoting lifelong learning in service work.

Research service is a weakness in promoting lifelong learning in service work.

Next, the research conducted the TOWS matrix of innovative library management based on the concept of lifelong learning, according to internal and external environments. Populate the Table: Insert the SWOT data from Table 4.25 into each cell of the TOWS matrix as Figure 4.2:

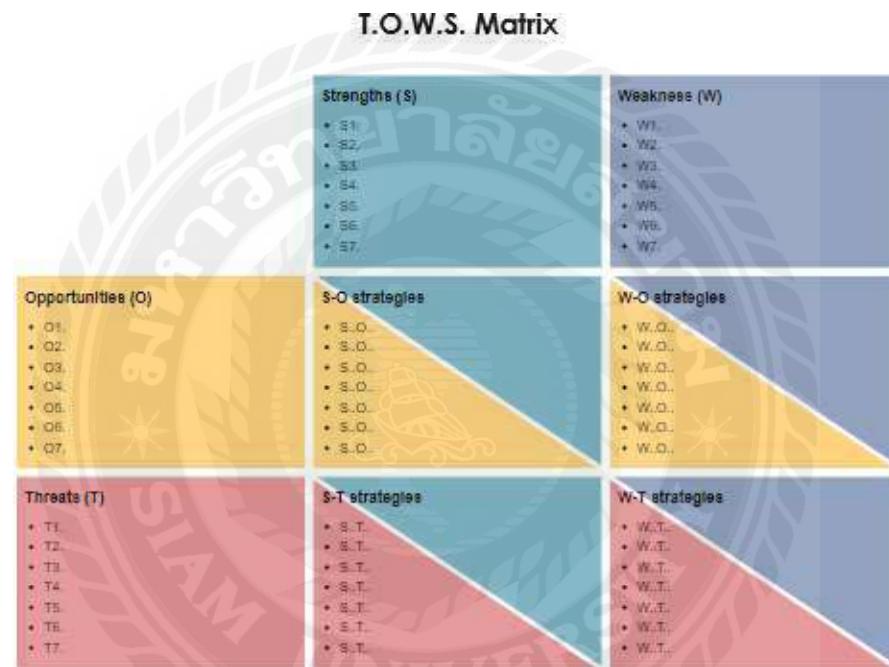


Figure 4.2 TOWS Matrix

Source: <https://www.cnblogs.com/uml-tool/articles/15606802.html>

SO (Strengths-Opportunities): Utilize organizational strengths to seize opportunities. These strategies focus on leveraging existing strengths to create growth and competitive advantage. These are primarily offensive strategies.

WO (Weaknesses-Opportunities): Address weaknesses to seize opportunities. These strategies focus on improving organizational weaknesses to take advantage of available opportunities. These are primarily defensive and improvement strategies.

ST (Strengths-Threats): Use organizational strengths to mitigate threats. These strategies focus on using existing strengths to counter and reduce the impact of threats. These are primarily defensive strategies.

WT (Weaknesses-Threats): Mitigate threats and address weaknesses. These strategies focus on addressing weaknesses and reducing the impact of threats. These are primarily defensive and retrenchment strategies.

Table 4.26 Form TOWS Matrix Based on SWOT Analysis Results

TOWS matrix	Opportunities	Threats	TOWS matrix
Strengths	<p>SO: Take opportunities of the external environment to more efficiently leverage the strengths of the internal environment.</p> <p>1. Technology, economy, politics, and society are opportunities to the strengths of service work in promoting "Learning to know" in lifelong learning.</p> <p>2. Technology, economy, politics, and society are opportunities to the strengths of service work in promoting "Learning to be" in lifelong learning.</p> <p>3. Technology, economy, politics, and society are opportunities to the strengths of service work in promoting "Learning to live together" in lifelong learning.</p> <p>4. Technology is opportunities to the strengths of management work in promoting "Learning to know" in lifelong learning.</p> <p>5. Technology and society are opportunities to the strengths of management work in promoting "Learning to be" in lifelong learning.</p>	<p>ST: Monitor external threats to reduce the impact on internal strengths.</p> <p>1. Society, politics, and economy are threats to the strengths of management work in promoting "Learning to know" in lifelong learning.</p> <p>2. Politics and economy are threats to the strengths of management work in promoting "Learning to be" in lifelong learning.</p>	Strengths
Weaknesses	<p>WO: Take opportunities of the external environment to compensate for the weaknesses in the internal environment.</p> <p>1. Technology is opportunities to the weaknesses of management work in promoting "Learning to live together" in lifelong learning.</p>	<p>WT: Avoid threats from the external environment to continue to affect the weaknesses of the internal environment.</p> <p>1. Society, politics, economy, and technology are threats to the weaknesses of management work in promoting "Learning to do" in lifelong learning.</p>	Weaknesses

Weaknesses	2. Society is opportunities to the weaknesses of service work in promoting "Learning to do" in lifelong learning.	2. Society and politics are threats to the weaknesses of management work in promoting "Learning to live together" in lifelong learning. 3. Politics, economy, and technology are threats to the weaknesses of service work in promoting "Learning to do" in lifelong learning.	Weaknesses
TOWS matrix	Opportunities	Threats	TOWS matrix

Comprehensive analysis of internal and external environments. This section provides a comprehensive analysis of the internal environment and external environment based on the data in Tables 4.25.

The final SO, ST, WO, and WT values in Table 4.27 serve as the foundation for decision-making, guiding the development of management strategies for innovative libraries. These numbers represent a structured, data-driven approach, ensuring that each strategy is based on real-world evaluations rather than subjective assessments.

The numbers in Table 4.27's SO, ST, WO, and WT columns come from the quantitative evaluation of SWOT factors, with values calculated through expert assessments, survey data, and PNI-modified analysis. This structured approach ensures that the TOWS matrix reflects realistic strategic priorities for innovative library management. The specific analysis results are shown in Figure 4.27.

Table 4.27 Comprehensive Analysis of Internal and External Environments

Component / Lifelong Learning Dimension	SO/ST/WO/WT			
	Politics (P)	Economy (E)	Society (S)	Technology (T)
1. Management work				
1. Learning to know	S4T7	S4T14	S4T4	S4O1
2. Learning to do	W1T2	W1T12	W1T1	W1T9
3. Learning to live together	W3T6	W3O10	W3T3	W3O9
4. Learning to be	S5T5	S5T13	S5O17	S5O5
2. Service work	Politics (P)	Economy (E)	Society (S)	Technology (T)
1. Learning to know	S1O11	S1O8	S1O14	S1O2
2. Learning to do	W2T8	W2T11	W2O18	W2T10
3. Learning to live together	S3O13	S3O4	S3O16	S3O7
4. Learning to be	S2O15	S2O6	S2O12	S2O3

Develop management strategies of the innovative library based on the concept of lifelong learning. Develop the strategy draft based on the strengths, weaknesses,

opportunities, and threats of each variable summarized in Table 4.25, 4.26 and 4.27, taking into account the PNI-modified values.

1) According to the statistical results of the data analysis of the independent variables and dependent variables, the main strategy is formulated with the relative weaknesses under the influence of the external environment and the internal weaknesses as the main ideas, and sort them in descending order according to the PNI-modified value.

2) Based on the statistical results of data analysis under the influence of the four external factors corresponding to each main strategy, formulate sub-strategies and sort them in descending order according to the PNI-modified value.

3) According to the actual situation of the internal and external environment, the specific procedure is determined by consulting literature and expert consultation.

The numerical scores in Table 4.27 represent expert-assigned importance weights applied to specific internal and external components, each classified by lifelong learning dimensions. These weights were derived from the prioritized SWOT elements identified in Table 4.25, which in turn were synthesized from empirical findings in Tables 4.15 through 4.22 using PNI-modified analysis. By grouping these weighted scores into four strategic categories—**SO (Strengths–Opportunities)**, **ST (Strengths–Threats)**, **WO (Weaknesses–Opportunities)**, and **WT (Weaknesses–Threats)**—the study identified which combinations of internal and external factors warranted the most strategic attention. The aggregated scores within each category allowed for the prioritization of strategic directions, with the **WO category receiving the highest total score**, thereby indicating the need to address internal weaknesses by leveraging external opportunities. These quantitative insights directly informed the development of the six main management strategies and their associated sub-strategies and procedures, as presented in Table 4.28 and visualized in Figure 4.3.

Through an iterative process of expert consultation and strategic refinement, this research developed a total of six main strategies, 24 sub-strategies, and 72 procedures. While Figure 4.3 illustrates the structural framework of the management strategy model, it does not include the detailed content of each strategy, which is described in detail in the subsequent sections of this chapter.



Figure 4.3 The Chart of Strategy Structure

The innovative library specific strategies details are as follows:

Main Strategy 1

Reform Library Management to Lead Lifelong Learning through "Learning to Do" (PNI-modified value = 0.5264)

Sub-Strategy 1.1

Use Strong Information Management to Solve Social Challenges (W1T1)

Procedures:

1. **Work with library users** to develop collections that meet local needs.
2. **Collaboration** between Public-Private and businesses to create specialized digital libraries for underserved groups.
3. **Encourage library users** to promote reading and resource use in schools and workplaces.

Sub-Strategy 1.2

Make Smart Budget Decisions to Reduce Policy Risks (W1T2)

Procedures:

1. **Hold budgeting meetings** with stakeholders to allocate funds wisely.
2. **Monitor policies** that impact libraries and adjust strategies accordingly.
3. **Use flexible financial models** to respond to changes in funding sources.

Sub-Strategy 1.3

Build Tech Partnerships to Overcome Technical Challenges (W1T9)

Procedures:

1. **Host workshops** where users can help test and suggest new tech solutions.
2. **Collaborate with AI developers** to create chatbots and virtual learning tools.
3. **Offer digital literacy programs** to help users engage with library technology.

Sub-Strategy 1.4

Expand Funding Sources to Strengthen Financial Stability (W1T12)

Procedures:

1. **Launch crowdfunding campaigns** to support library improvements.
2. **Introduce membership programs** with premium learning resources.
3. **Partner with local businesses** to sponsor library events and services.

Main Strategy 2

Redesign Library Management with Digital Innovations to Help Communities Learn and Grow Together (PNI-modified value = 0.4160)

Sub-Strategy 2.1

Transform Libraries into Dynamic Community Hubs that Foster Social Cohesion and Civic Engagement (W3T3)

Procedures:

1. **Encourage users to plan events** that address local needs like job training.
2. **Create online community spaces** where users can share ideas and organize events.
3. **Partner with civic groups** to offer more diverse and interactive programs.

Sub-Strategy 2.2**Create Lasting Library Policies to Handle External Challenges (W3T6)****Procedures:**

1. **Mobilize library users** to advocate for better policies at regional and national levels.
2. **Policy Impact Reviews** through an advisory group of government and non-government representatives to evaluate and recommend policy changes based on their expertise.
3. **Train community members** on how to contribute to library governance and policies.

Sub-Strategy 2.3**Use Technology to Promote Inclusive Learning for Everyone (W3O9)****Procedures:**

1. **Develop library apps** to help users personalize their learning experience.
2. **Create interactive learning platforms** that encourage teamwork and collaboration.
3. **Host tech competitions** where users can develop new tools for library services.

Sub-Strategy 2.4**Tap Into Economic Trends to Strengthen Community Connections (W3O10)****Procedures:**

1. **Partner with local industries** to provide skill-building programs that align with emerging job market needs.
2. **Transform library spaces** into interactive hubs that encourage collaboration and hands-on learning experiences.
3. **Organize competitions and projects** that tackle local economic challenges and support community growth.

Main Strategy 3**Overcome Weaknesses in Library Management with Data-Driven Strategies to Drive Lifelong Learning Success****Sub-Strategy 3.1(WO)****Improve Staff Management to Boost Library Performance (PNI-modified value = 0.5792, Weaknesses)****Procedures:**

1. **Offer continuous learning programs** for library employees.
2. **Use AI to forecast staffing needs** based on user demand.
3. **Provide clear career paths** to attract and retain talented staff.

Sub-Strategy 3.2 (WO)**Strengthen Organizational Structure for Smoother Operations (PNI-modified value = 0.5349, Weaknesses)****Procedures:**

1. **Create advisory boards** with users to align services with community needs.
2. **Develop digital dashboards** for tracking resources and getting user feedback.
3. **Encourage cross-department training** to improve teamwork and efficiency.

Sub-Strategy 3.3 (WO)**Set Clear Guidelines and Standards to Support Library Innovation (PNI-modified value = 0.5111, Weaknesses)****Procedures:**

1. **Pair experienced leaders with new managers** to ensure consistent service quality.
2. **Standardize library operations** across different locations for efficiency.
3. **Encourage creative thinking** by giving staff freedom to propose new ideas.

Sub-Strategy 3.4 (WO)**Use User Feedback and Data to Adapt Services Quickly (PNI-modified value = 0.5106, Weaknesses)****Procedures:**

1. **Leverage advanced data analytics and AI** to monitor user trends and make real-time service improvements.
2. **Deploy interactive kiosks, AI chatbots, and virtual forums** to efficiently collect user feedback and enhance library services.
3. **Perform regular audits and user experience (UX) surveys**, using insights from strategic workshops to refine and innovate the library experience.

Sub-Strategy 3.5 (WO)**Encourage Partnerships and Smart Resource Use for Long-Term Growth (PNI-modified value = 0.4881, Weaknesses)****Procedures:**

1. **Partner with renowned libraries and experts** to develop learning frameworks and exchange best practices.
2. **Collaborate with educational institutions** to organize innovation challenges, professional workshops, and community-driven training programs.
3. **Create platforms** where businesses offer hands-on projects and mentorship to equip users with real-world skills.

Main Strategy 4**Empower Libraries with Emerging Technologies to Drive Hands-On Learning and Skill Development (PNI-modified value = 0.4164)****Sub-Strategy 4.1****Create Strong Policies to Keep Library Services Running Smoothly (W2T8)****Procedures:**

1. **Work with policymakers** to create library-friendly regulations.
2. **Monitor new policies** to keep up with changes that might affect services.
3. **Develop a response plan** to handle unexpected disruptions.

Sub-Strategy 4.2**Upgrade Educational Services to Keep Up with Technology Changes (W2T10)****Procedures:**

1. **Offer online courses** to make learning more flexible.
2. **Introduce virtual and augmented reality tools** for immersive experiences.
3. **Use AI-powered assistants** to help users find and access resources faster.

Sub-Strategy 4.3:**Improve Funding Strategies to Ensure Library Sustainability (W2T11)****Procedures:**

1. **Explore different funding options** like grants, sponsorships, and memberships.
2. **Encourage local businesses** to invest in library development.
3. **Create fee-based services** that provide premium learning resources while keeping basic services free.

Sub-Strategy 4.4:**Enhance Information Resources to Reach More Communities (W2O18)****Procedures:**

1. **Strengthen interlibrary loans and deploy mobile kiosks** to improve resource access for remote and underserved communities.
2. **Implement AI-driven catalog** recommendations and personalized digital resource delivery to enhance user experience.
3. **Engage users** in developing shared knowledge resources, including citizen-authored guides and digital repositories

Main Strategy 5**Collaborate Libraries as Harmony Builders in Lifelong Learning to Facilitate “Learning to Live Together” (PNI-modified value= 0.3343)****Sub-Strategy 5.1****Strengthen Economic Support to Create Inclusive Learning Spaces (S3O4)****Procedures:**

1. **Develop partnerships with corporations** to fund literacy and job training programs.
2. **Offer paid professional courses** while keeping basic education free.
3. **Introduce flexible pricing models** for premium library services.

Sub-Strategy 5.2**Synergize Technological for Cooperative Digital Learning (S3O7)****Procedures:**

1. **Provide free access to digital libraries** for low-income groups.
2. **Develop smart learning platforms** that adapt to users' needs.
3. **Ensure that all digital services** are accessible to people with disabilities.

Sub-Strategy 5.3**Support Policies That Encourage Seamless Library Integration (S3O13)****Procedures:**

1. **Work with local governments** to secure consistent funding.
2. **Encourage policymakers** to recognize libraries as essential for lifelong learning.
3. **Engage the public** in discussions about how libraries can better serve their needs.

Sub-Strategy 5.4**Expand Community Services to Connect and Support More People (S3O16)****Procedures:**

1. **Partner with local NGOs and community groups** to encourage user participation in social and volunteer activities.
2. **Use library spaces** for interactive events such as debate forums and cultural programs to promote engagement and community building.
3. **Organize hybrid events** that combine online and in-person experiences to enhance accessibility and cross-cultural connections

Main Strategy 6**Enhance Library Services with AI and Smart Learning Tools to Lead in Lifelong Learning (PNI-modified value = 0.5014, Weaknesses)****Sub-Strategy 6.1 (WO)****Enhance Professional Skills to Advance Research Services****Procedures:**

1. **Offer training programs** that focus on research skills.
2. **Bring in experts** to mentor library staff in specialized fields.
3. **Use AI tools** to help staff provide better research support.

Sub-Strategy 6.2 (WO)**Allocate Resources Smartly to Improve Research Results****Procedures:**

1. **Analyze user data** to better allocate resources.
2. **Create flexible research spaces** that meet different study needs.
3. **Ensure fair access** to resources, especially in underserved areas.

Sub-Strategy 6.3 (WO)**Mobilize Volunteer Power to Drive Community-Led Innovation****Procedures:**

1. **Recruit skilled volunteers** to support research and innovation projects.
2. **Create innovation labs** where volunteers and users collaborate on new ideas.
3. **Offer recognition and rewards** for volunteers who contribute significantly.

After conducting a comprehensive analysis and synthesis of innovative library management strategies within the framework of lifelong learning, the researcher formulated and refined the proposed strategies based on extensive research findings. These strategies were then submitted to the advisor for review, and the researcher incorporated the advisor's feedback through a systematic revision process. In addition to considering the advisor's recommendations, the researcher conducted further evaluations and refinements, ensuring that the final strategies align with practical applications, academic rigor, and the evolving needs of innovative libraries.

These strategies provide practical, clear, and achievable steps to transform libraries into modern, community-focused, and technology-driven spaces. By adopting new technologies, improving management, and strengthening community engagement, libraries can fully support lifelong learning and ensure inclusive access to knowledge. Through this iterative process, the researcher not only incorporated the advisor's

feedback but also carefully evaluated and refined the strategies to further enhance their effectiveness, sustainability, and contribution to library innovation.

4.3.2 Evaluate the Suitability and Feasibility of Management Strategies of the Innovative Library Based on the Concept of Lifelong Learning (Draft 2)

This research used the focus group of expert discussion to evaluate the suitability and feasibility of management strategies. Requesting government coordination and inviting experts in library management and lifelong learning, the group consisted of a total of 7 people, 3 of them are experts in the field of library management and 4 of them are experts in the field of education and management.

Criteria for selecting experts:

For the experts in the field of library management - An expert must have work experience in working at the innovative library for more than 3 years.

For the experts in the field of education and management - An expert must be a university faculty member engaged in education teaching/management in a university or an official engaged in education teaching/management in the government.

After conducting the Focus Group discussion, experts provided recommendations for revising the Main Strategy, Sub-Strategies, and Procedures as follows.

Expert 1 recommended the following revision:

"I recommend revising the wording of the main strategy 1, stating: The term 'Reform' in 'Reform Library Management to Lead Lifelong Learning through "Learning to Do"' (PNI-modified value = 0.5264). It is too broad and may be difficult to implement. A more precise term should be used to ensure clarity and practicality in application."

"If the Procedures begin with a verb and are written as single, standalone sentences, they will be easier to understand and implement effectively."

Expert 2 recommended the following revision:

"Overall, the wording of the 'Procedures' should be simplified to clearly illustrate the steps for implementation, making them more practical and actionable."

"The statement of the procedure 2 of the Sub-Strategy 1.1 'Public-Private Collaboration: Partner with businesses to create specialized digital libraries for underserved group's which emphasizes collaboration with both businesses and other organizations, should be modified to focus solely on partnerships with businesses. This adjustment ensures greater clarity and specifically highlights business-sector involvement."

Expert 3 recommended the following revision:

"The statement in Sub-Strategy 2.1, 'Transform Libraries into Dynamic Community Hubs that Foster Social Cohesion and Civic Engagement,' should be revised to be more straightforward and easily understood, ensuring practical implementation."

"The statement in Sub-Strategy 2, Item 2.2, 'Policy Impact Reviews: Establish an advisory group composed of representatives from relevant government departments and non-government agents to review and suggest policy changes based on their experiences,' is too specific in identifying government and non-government agencies as the key reviewers. Instead, it would be more appropriate to phrase it in a broader manner to allow for wider participation and inclusivity in the policy review process."

Expert 4 recommended the following revision:

"The statement in Sub-Strategy 6.3, 'Mobilize Volunteer Power to Drive Community-Led Innovation,' should be revised as the successful mobilization of volunteers requires government policy support. Without such support, sustaining volunteer-driven initiatives over the long term may be challenging. However, for this strategy, it is suggested to reduce the emphasis on government involvement and instead focus more on empowering the local community. Additionally, the wording in Sub-Strategy 6.3 should be simplified to enhance clarity and ease of understanding."

Expert 5 recommended the following revision:

"The statement in Main Strategy 5, 'Collaborate Libraries as Harmony Builders in Lifelong Learning to Facilitate "Learning to Live Together" (PNI-modified value = 0.3343),' should be revised for clarity. Terms such as 'Harmony Builders' are ambiguous, making it unclear what the researcher intends to convey. Additionally, the wording is overly elaborate, making the statement difficult to comprehend. A more straightforward and precise phrasing would enhance readability and practical implementation."

Expert 6 recommended the following revision:

"The statement in Sub-Strategy 5.2, 'Synergize Technological for Cooperative Digital Learning,' should be revised for greater clarity. The phrase 'synergize technology' is somewhat ambiguous and lacks specificity, making it difficult to visualize practical implementation. While strategic statements should be precise and proactive, the chosen wording should also be concrete and clearly convey actionable steps."

Expert 7 recommended the following revision:

"It is important to ensure that the Main Strategy, Sub-Strategies, and Procedures within each set are consistently aligned in both content and terminology. A thorough review should be conducted to enhance coherence across all levels. Overall, the proposed strategies are generally well-structured and appropriate, with suggested modifications aligning with the recommendations of other experts."

Following the evaluation, all seven experts unanimously agreed that the proposed management strategies were well-designed, suitable, practical, and applicable to real-world library management. They endorsed the strategies as well-structured and feasible, emphasizing their potential for enhancing innovative library operations and supporting lifelong learning initiatives.

According to recommendations of focus group experts, innovative library management strategies based on lifelong learning were revised, and the details are as follows:

Main Strategy 1

Modernize Library Management with Smart Solutions to Support Hands-On Learning for Lifelong Growth (PNI-modified value = 0.5264)

Sub-Strategy 1.1

Use Strong Information Management to Solve Social Challenges (W1T1)

Procedures:

1. **Work with library users** to develop collections that meet local needs.
2. **Partner with businesses** to create digital libraries for underserved groups.

3. **Encourage library users** to promote reading and resource use in schools and workplaces.

Sub-Strategy 1.2

Make Smart Budget Decisions to Reduce Policy Risks (W1T2)

Procedures:

1. **Hold budgeting meetings** with stakeholders to allocate funds wisely.
2. **Monitor policies** that impact libraries and adjust strategies accordingly.
3. **Use flexible financial models** to respond to changes in funding sources.

Sub-Strategy 1.3

Build Tech Partnerships to Overcome Technical Challenges (W1T9)

Procedures:

1. **Host workshops** where users can help test and suggest new tech solutions.
2. **Collaborate with AI developers** to create chatbots and virtual learning tools.
3. **Offer digital literacy programs** to help users engage with library technology.

Sub-Strategy 1.4

Expand Funding Sources to Strengthen Financial Stability (W1T12)

Procedures:

1. **Launch crowdfunding campaigns** to support library improvements.
2. **Introduce membership programs** with premium learning resources.
3. **Partner with local businesses** to sponsor library events and services.

Main Strategy 2

Redesign Library Management with Digital Innovations to Help Communities Learn and Grow Together (PNI-modified value = 0.4160)

Sub-Strategy 2.1

Make Libraries Community Hubs to Bring People Together (W3T3)

Procedures:

1. **Encourage users to plan events** that address local needs like job training.
2. **Create online community spaces** where users can share ideas and organize events.
3. **Partner with civic groups** to offer more diverse and interactive programs.

Sub-Strategy 2.2

Create Lasting Library Policies to Handle External Challenges (W3T6)

Procedures:

1. **Mobilize library users** to advocate for better policies at regional and national levels.
2. **Create an advisory group** to review and suggest improvements to library policies.
3. **Train community members** on how to contribute to library governance and policies.

Sub-Strategy 2.3

Use Technology to Promote Inclusive Learning for Everyone (W3O9)

Procedures:

1. **Develop library apps** to help users personalize their learning experience.
2. **Create interactive learning platforms** that encourage teamwork and collaboration.

3. **Host tech competitions** where users can develop new tools for library services.

Sub-Strategy 2.4

Tap Into Economic Trends to Strengthen Community Connections (W3O10)

Procedures:

1. **Partner with local industries** to provide skill-building programs that align with emerging job market needs.
2. **Transform library spaces** into interactive hubs that encourage collaboration and hands-on learning experiences.
3. **Organize competitions and projects** that tackle local economic challenges and support community growth.

Main Strategy 3

Overcome Weaknesses in Library Management with Data-Driven Strategies to Drive Lifelong Learning Success

Sub-Strategy 3.1 (WO)

Improve Staff Management to Boost Library Performance (PNI-modified value = 0.5792, Weaknesses)

Procedures:

1. **Offer continuous learning programs** for library employees.
2. **Use AI to forecast staffing needs** based on user demand.
3. **Provide clear career paths** to attract and retain talented staff.

Sub-Strategy 3.2 (WO)

Strengthen Organizational Structure for Smoother Operations (PNI-modified value = 0.5349, Weaknesses)

Procedures:

1. **Create advisory boards** with users to align services with community needs.
2. **Develop digital dashboards** for tracking resources and getting user feedback.
3. **Encourage cross-department training** to improve teamwork and efficiency.

Sub-Strategy 3.3 (WO)

Set Clear Guidelines and Standards to Support Library Innovation (PNI-modified value = 0.5111, Weaknesses)

Procedures:

1. **Pair experienced leaders with new managers** to ensure consistent service quality.
2. **Standardize library operations** across different locations for efficiency.
3. **Encourage creative thinking** by giving staff freedom to propose new ideas.

Sub-Strategy 3.4 (WO)

Use User Feedback and Data to Adapt Services Quickly (PNI-modified value = 0.5106, Weaknesses)

Procedures:

1. **Leverage advanced data analytics and AI** to monitor user trends and make real-time service improvements.
2. **Deploy interactive kiosks, AI chatbots, and virtual forums** to efficiently collect user feedback and enhance library services.

3. **Perform** regular audits and user experience (UX) surveys, using insights from strategic workshops to refine and innovate the library experience.

Sub-Strategy 3.5 (WO)

Encourage Partnerships and Smart Resource Use for Long-Term Growth (PNI-modified value = 0.4881, Weaknesses)

Procedures:

1. **Partner with renowned libraries and experts** to develop learning frameworks and exchange best practices.
2. **Collaborate with educational institutions** to organize innovation challenges, professional workshops, and community-driven training programs.
3. **Create platforms** where businesses offer hands-on projects and mentorship to equip users with real-world skills.

Main Strategy 4

Empower Libraries with Emerging Technologies to Drive Hands-On Learning and Skill Development (PNI-modified value = 0.4164)

Sub-Strategy 4.1

Create Strong Policies to Keep Library Services Running Smoothly (W2T8)

Procedures:

1. **Work with policymakers** to create library-friendly regulations.
2. **Monitor new policies** to keep up with changes that might affect services.
3. **Develop a response plan** to handle unexpected disruptions.

Sub-Strategy 4.2

Upgrade Educational Services to Keep Up with Technology Changes (W2T10)

Procedures:

1. **Offer online courses** to make learning more flexible.
2. **Introduce virtual and augmented reality tools** for immersive experiences.
3. **Use AI-powered assistants** to help users find and access resources faster.

Sub-Strategy 4.3:

Improve Funding Strategies to Ensure Library Sustainability (W2T11)

Procedures:

1. **Explore different funding options** like grants, sponsorships, and memberships.
2. **Encourage local businesses** to invest in library development.
3. **Create fee-based services** that provide premium learning resources while keeping basic services free.

Sub-Strategy 4.4:

Enhance Information Resources to Reach More Communities (W2O18)

Procedures:

1. **Strengthen interlibrary loans and deploy mobile kiosks** to improve resource access for remote and underserved communities.
2. **Implement AI-driven catalog** recommendations and personalized digital resource delivery to enhance user experience.
3. **Engage users** in developing shared knowledge resources, including citizen-authored guides and digital repositories.

Main Strategy 5

Partner with Libraries Using Interactive and Inclusive Approaches to Build Stronger Communities Through Lifelong Learning (PNI-modified value= 0.3343)

Sub-Strategy 5.1

Strengthen Economic Support to Create Inclusive Learning Spaces (S3O4)

Procedures:

1. **Develop partnerships with corporations** to fund literacy and job training programs.
2. **Offer paid professional courses** while keeping basic education free.
3. **Introduce flexible pricing models** for premium library services.

Sub-Strategy 5.2

Use Technology to Promote Collaborative Digital Learning (S3O7)

Procedures:

1. **Provide free access to digital libraries** for low-income groups.
2. **Develop smart learning platforms** that adapt to users' needs.
3. **Ensure that all digital services** are accessible to people with disabilities.

Sub-Strategy 5.3

Support Policies That Encourage Seamless Library Integration (S3O13)

Procedures:

1. **Work with local governments** to secure consistent funding.
2. **Encourage policymakers** to recognize libraries as essential for lifelong learning.
3. **Engage the public** in discussions about how libraries can better serve their needs.

Sub-Strategy 5.4

Expand Community Services to Connect and Support More People (S3O16)

Procedures:

1. **Partner with local NGOs and community groups** to encourage user participation in social and volunteer activities.
2. **Use library spaces** for interactive events such as debate forums and cultural programs to promote engagement and community building.
3. **Organize hybrid events** that combine online and in-person experiences to enhance accessibility and cross-cultural connections

Main Strategy 6

Enhance Library Services with AI and Smart Learning Tools to Lead in Lifelong Learning (PNI-modified value = 0.5014, Weaknesses)

Sub-Strategy 6.1 (WO)

Enhance Professional Skills to Advance Research Services

Procedures:

1. **Offer training programs** that focus on research skills.
2. **Bring in experts** to mentor library staff in specialized fields.
3. **Use AI tools** to help staff provide better research support.

Sub-Strategy 6.2 (WO)

Allocate Resources Smartly to Improve Research Results

Procedures:

1. **Analyze user data** to better allocate resources.
2. **Create flexible research spaces** that meet different study needs.
3. **Ensure fair access** to resources, especially in underserved areas.

Sub-Strategy 6.3 (WO)

Engage Volunteers to Inspire Community-Driven Innovation

Procedures:

1. **Recruit skilled volunteers** to support research and innovation projects.
2. **Create innovation labs** where volunteers and users collaborate on new ideas.
3. **Offer recognition and rewards** for volunteers who contribute significantly.

4.3.3 Evaluate the Applicability of Management Strategies of the Innovative Library Based on the Concept of Lifelong Learning (Draft 3)

The research randomly selected an innovative library manager in each district (A total of 14 districts) to evaluate the modified strategies, and the summary of the basic information and evaluation results are shown in table 4.28 and 4.29.

The basic profile of the respondents in this study includes three aspects: gender, age and education (Table 4.28).

Table 4.28 Basic Information of Managers Evaluating the Applicability

Information	n	%
Gender		
Male	3	21.4
Female	11	78.6
Age		
22-30	2	14.3
31-40	5	35.7
41-50	7	50.0
51-60	0	0.0
Above 60	0	0.0
Education		
High school diploma level and below	0	0.0
Associate diploma level	9	64.3
Bachelor's degree level	5	35.7
Master's degree level	0	0.0
Doctoral degree level	0	0.0
Total	14	100

From Table 4.28, it can be found that the majority of innovative library managers are female, accounting for 78.6%. Most managers are between 31 to 40 and 41 to 50 years old, accounting for 35.7% and 50.0% respectively. The education level of managers is all in associate diploma and bachelor, accounting for 64.3% and 35.7% respectively.

Table 4.29 The Frequency Distribution of Managers' Evaluation of Management Strategies

Management strategies	Evaluation frequency		
	Easy to Apply	Moderate to Apply	Hard to Apply
<i>Main Strategy 1</i>			
Modernize Library Management with Smart Solutions to Support Hands-On Learning for Lifelong Growth	11	3	0
<i>Sub-Strategy 1.1</i>			
Use Strong Information Management to Solve Social Challenges	10	4	0
<i>Procedures:</i>			
1. Work with library users to develop collections that meet local needs.	12	2	0
2. Partner with businesses to create digital libraries for underserved groups.	10	4	0
3. Encourage library users to promote reading and resource use in schools and workplaces.	10	4	0
<i>Sub-Strategy 1.2</i>			
Make Smart Budget Decisions to Reduce Policy Risks	8	6	0
<i>Procedures:</i>			
1. Hold budgeting meetings with stakeholders to allocate funds wisely.	10	4	0
2. Monitor policies that impact libraries and adjust strategies accordingly.	8	6	0
3. Use flexible financial models to respond to changes in funding sources.	10	4	0
<i>Sub-Strategy 1.3</i>			
Build Tech Partnerships to Overcome Technical Challenges	9	5	0
<i>Procedures:</i>			
1. Host workshops where users can help test and suggest new tech solutions.	13	1	0
2. Collaborate with AI developers to create chatbots and virtual learning tools.	12	2	0
3. Offer digital literacy programs to help users engage with library technology.	9	5	0

Sub-Strategy 1.4

Expand Funding Sources to Strengthen Financial Stability	8	6	0
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Procedures:

1. Launch crowdfunding campaigns to support library improvements.	10	4	0
2. Introduce membership programs with premium learning resources.	8	6	0
3. Partner with local businesses to sponsor library events and services.	13	1	0

Main Strategy 2

Redesign Library Management with Digital Innovations to Help Communities Learn and Grow Together	8	6	0
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Sub-Strategy 2.1

Make Libraries Community Hubs to Bring People Together	9	5	0
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Procedures:

1. Encourage users to plan events that address local needs like job training.	11	3	0
2. Create online community spaces where users can share ideas and organize events.	10	4	0
3. Partner with civic groups to offer more diverse and interactive programs.	11	3	0

Sub-Strategy 2.2

Create Lasting Library Policies to Handle External Challenges	13	1	0
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Procedures:

1. Mobilize library users to advocate for better policies at regional and national levels.	11	3	0
2. Create an advisory group to review and suggest improvements to library policies.	13	1	0
3. Train community members on how to contribute to library governance and policies.	13	1	0

Sub-Strategy 2.3

Use Technology to Promote Inclusive Learning for Everyone	11	3	0
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Procedures:

1. Develop library apps to help users personalize their learning experience.	10	4	0
2. Create interactive learning platforms that encourage teamwork and collaboration.	8	6	0
3. Host tech competitions where users can develop new tools for library services.	10	4	0

Sub-Strategy 2.4

Tap Into Economic Trends to Strengthen Community Connections	9	5	0
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Procedures:

1. Partner with local industries to provide skill-building programs that align with emerging job market needs.	11	3	0
2. Transform library spaces into interactive hubs that encourage collaboration and hands-on learning experiences.	10	4	0
3. Organize competitions and projects that tackle local economic challenges and support community growth.	13	1	0

Main Strategy 3

Overcome Weaknesses in Library Management with Data-Driven Strategies to Drive Lifelong Learning Success	12	2	0
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Sub-Strategy 3.1

Improve Staff Management to Boost Library Performance	11	3	0
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Procedures:

1. Offer continuous learning programs for library employees.	12	2	0
2. Use AI to forecast staffing needs based on user demand.	12	2	0
3. Provide clear career paths to attract and retain talented staff.	11	3	0

Sub-Strategy 3.2

Strengthen Organizational Structure for Smoother Operations	9	5	0
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Procedures:

1. Create advisory boards with users to align services with community needs.	9	5	0
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2. Develop digital dashboards for tracking resources and getting user feedback.	10	4	0
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3. Encourage cross-department training to improve teamwork and efficiency.	10	4	0
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Sub-Strategy 3.3

Set Clear Guidelines and Standards to Support Library Innovation	10	4	0
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Procedures:

1. Pair experienced leaders with new managers to ensure consistent service quality.	13	1	0
2. Standardize library operations across different locations for efficiency.	13	1	0
3. Encourage creative thinking by giving staff freedom to propose new ideas.	12	2	0

Sub-Strategy 3.4

Use User Feedback and Data to Adapt Services Quickly	12	2	0
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Procedures:

1. Leverage advanced data analytics and AI to monitor user trends and make real-time service improvements.	14	0	0
2. Deploy interactive kiosks, AI chatbots, and virtual forums to efficiently collect user feedback and enhance library services.	11	3	0
3. Perform regular audits and user experience (UX) surveys , using insights from strategic workshops to refine and innovate the library experience.	11	3	0

Sub-Strategy 3.5

Encourage Partnerships and Smart Resource Use for Long-Term Growth	10	4	0
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Procedures:

1. Partner with renowned libraries and experts to develop learning frameworks and exchange best practices.	9	5	0
2. Collaborate with educational institutions to organize innovation challenges,	13	1	0

professional workshops, and community-driven training programs.			
3. Create platforms where businesses offer hands-on projects and mentorship to equip users with real-world skills.	9	5	0

Main Strategy 4

Empower Libraries with Emerging Technologies to Drive Hands-On Learning and Skill Development	13	1	0
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Sub-Strategy 4.1

Create Strong Policies to Keep Library Services Running Smoothly	10	4	0
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Procedures:

1. Work with policymakers to create library-friendly regulations.	13	1	0
2. Monitor new policies to keep up with changes that might affect services.	10	4	0
3. Develop a response plan to handle unexpected disruptions.	12	2	0

Sub-Strategy 4.2

Upgrade Educational Services to Keep Up with Technology Changes	9	5	0
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Procedures:

1. Offer online courses to make learning more flexible.	10	4	0
2. Introduce virtual and augmented reality tools for immersive experiences.	10	4	0
3. Use AI-powered assistants to help users find and access resources faster.	11	3	0

Sub-Strategy 4.3

Improve Funding Strategies to Ensure Library Sustainability	10	4	0
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Procedures:

1. Explore different funding options like grants, sponsorships, and memberships.	10	4	0
2. Encourage local businesses to invest in library development.	9	5	0
3. Create fee-based services that provide premium learning resources while keeping basic services free.	12	2	0

Sub-Strategy 4.4

Enhance Information Resources to Reach More Communities	11	3	0
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Procedures:

1. Strengthen interlibrary loans and deploy mobile kiosks to improve resource access for remote and underserved communities.	13	1	0
2. Implement AI-driven catalog recommendations and personalized digital resource delivery to enhance user experience.	12	2	0
3. Engage users in developing shared knowledge resources, including citizen-authored guides and digital repositories.	10	4	0

Main Strategy 5

Partner with Libraries Using Interactive and Inclusive Approaches to Build Stronger Communities Through Lifelong Learning	11	3	0
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Sub-Strategy 5.1

Strengthen Economic Support to Create Inclusive Learning Spaces	13	1	0
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Procedures:

1. Develop partnerships with corporations to fund literacy and job training programs.	14	0	0
2. Offer paid professional courses while keeping basic education free.	11	3	0
3. Introduce flexible pricing models for premium library services.	12	2	0

Sub-Strategy 5.2

Use Technology to Promote Collaborative Digital Learning	10	4	0
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Procedures:

1. Provide free access to digital libraries for low-income groups.	11	3	0
2. Develop smart learning platforms that adapt to users' needs.	12	2	0
3. Ensure that all digital services are accessible to people with disabilities.	10	4	0

Sub-Strategy 5.3

Support Policies That Encourage Seamless Library Integration	12	2	0
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Procedures:

1. Work with local governments to secure consistent funding.	11	3	0
2. Encourage policymakers to recognize libraries as essential for lifelong learning.	12	2	0
3. Engage the public in discussions about how libraries can better serve their needs.	14	0	0

Sub-Strategy 5.4

Expand Community Services to Connect and Support More People	12	2	0
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Procedures:

1. Partner with local NGOs and community groups to encourage user participation in social and volunteer activities.	13	1	0
2. Use library spaces for interactive events such as debate forums and cultural programs to promote engagement and community building.	10	4	0
3. Organize hybrid events that combine online and in-person experiences to enhance accessibility and cross-cultural connections.	14	0	0

Main Strategy 6

Enhance Library Services with AI and Smart Learning Tools to Lead in Lifelong Learning	11	3	0
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Sub-Strategy 6.1

Enhance Professional Skills to Advance Research Services	13	1	0
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Procedures:

1. Offer training programs that focus on research skills.	13	1	0
2. Bring in experts to mentor library staff in specialized fields.	13	1	0
3. Use AI tools to help staff provide better research support.	14	0	0

Sub-Strategy 6.2

Allocate Resources Smartly to Improve Research Results	9	5	0
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Procedures:

1. Analyze user data to better allocate resources.	13	1	0
2. Create flexible research spaces that meet different study needs.	9	5	0
3. Ensure fair access to resources, especially in underserved areas.	12	2	0
<i>Sub-Strategy 6.3</i>			
Engage Volunteers to Inspire Community-Driven Innovation	13	1	0
<i>Procedures:</i>			
1. Recruit skilled volunteers to support research and innovation projects.	12	2	0
2. Create innovation labs where volunteers and users collaborate on new ideas.	13	1	0
3. Offer recognition and rewards for volunteers who contribute significantly.	12	2	0

The results in Table 4.29 indicate that the innovative library management strategies are generally considered feasible by managers. Of the 102 evaluated items, 79% were rated as easy to apply, while 21% were rated as moderate to apply, with no strategies deemed hard to apply. Six specific aspects—comprising one main strategy, two sub-strategies, and three procedures—were rated as moderate to apply by six managers and easy to apply by eight managers. Based on these findings and further discussions, the researcher concludes that all strategies are appropriate for innovative library management.

Based on the analysis of results and thorough discussions with advisors, this study concludes that all strategies are well-suited for innovative library management.

4.3.4 Formally Propose Management Strategies of the Innovative Library Based on the Concept of Lifelong Learning (Final Version)

According to the evaluation of focus group experts and innovative library managers, after discussions with advisors, the innovative library management strategies based on lifelong learning were revised and finally determined. The final version of innovative library management strategies based on the concept of lifelong learning is shown in Figure 4.4.

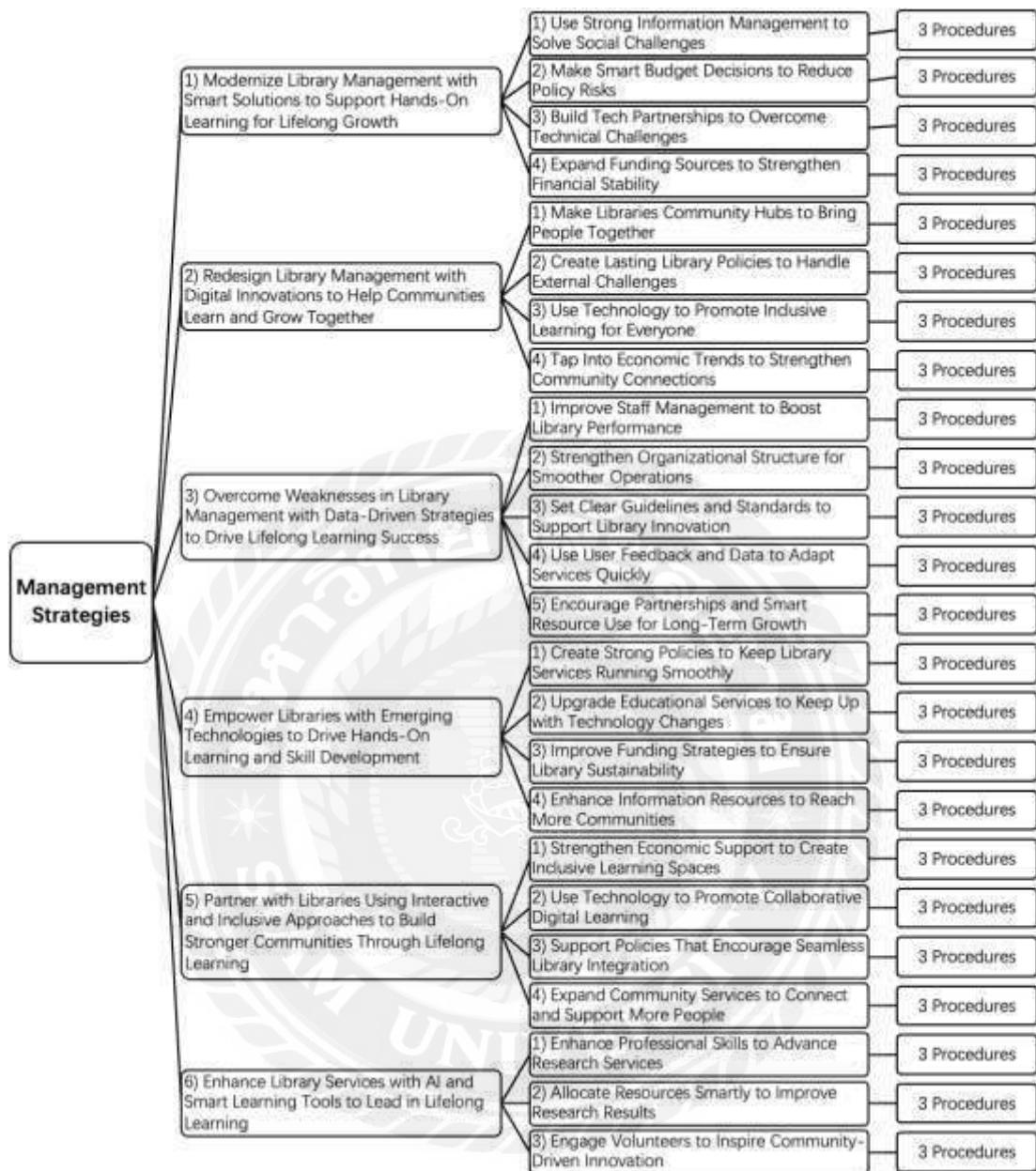


Figure 4.4 Final Version of Innovative Library Management Strategies

Details of the final version of the innovative library management strategies are as follows:

Main Strategy 1

Modernize Library Management with Smart Solutions to Support Hands-On Learning for Lifelong Growth (PNI-modified value = 0.5264)

Sub-Strategy 1.1

Use Strong Information Management to Solve Social Challenges (W1T1)

Procedures:

1. **Work with library users** to develop collections that meet local needs.
2. **Partner with businesses** to create digital libraries for underserved groups.

3. **Encourage library users** to promote reading and resource use in schools and workplaces.

Sub-Strategy 1.2

Make Smart Budget Decisions to Reduce Policy Risks (W1T2)

Procedures:

1. **Hold budgeting meetings** with stakeholders to allocate funds wisely.
2. **Monitor policies** that impact libraries and adjust strategies accordingly.
3. **Use flexible financial models** to respond to changes in funding sources.

Sub-Strategy 1.3

Build Tech Partnerships to Overcome Technical Challenges (W1T9)

Procedures:

1. **Host workshops** where users can help test and suggest new tech solutions.
2. **Collaborate with AI developers** to create chatbots and virtual learning tools.
3. **Offer digital literacy programs** to help users engage with library technology.

Sub-Strategy 1.4

Expand Funding Sources to Strengthen Financial Stability (W1T12)

Procedures:

1. **Launch crowdfunding campaigns** to support library improvements.
2. **Introduce membership programs** with premium learning resources.
3. **Partner with local businesses** to sponsor library events and services.

Main Strategy 2

Redesign Library Management with Digital Innovations to Help Communities Learn and Grow Together (PNI-modified value = 0.4160)

Sub-Strategy 2.1

Make Libraries Community Hubs to Bring People Together (W3T3)

Procedures:

1. **Encourage users to plan events** that address local needs like job training.
2. **Create online community spaces** where users can share ideas and organize events.
3. **Partner with civic groups** to offer more diverse and interactive programs.

Sub-Strategy 2.2

Create Lasting Library Policies to Handle External Challenges (W3T6)

Procedures:

1. **Mobilize library users** to advocate for better policies at regional and national levels.
2. **Create an advisory group** to review and suggest improvements to library policies.
3. **Train community members** on how to contribute to library governance and policies.

Sub-Strategy 2.3

Use Technology to Promote Inclusive Learning for Everyone (W3O9)

Procedures:

1. **Develop library apps** to help users personalize their learning experience.
2. **Create interactive learning platforms** that encourage teamwork and collaboration.

3. **Host tech competitions** where users can develop new tools for library services.

Sub-Strategy 2.4

Tap Into Economic Trends to Strengthen Community Connections (W3O10)

Procedures:

1. **Partner with local industries** to provide skill-building programs that align with emerging job market needs.
2. **Transform library spaces** into interactive hubs that encourage collaboration and hands-on learning experiences.
3. **Organize competitions and projects** that tackle local economic challenges and support community growth.

Main Strategy 3

Overcome Weaknesses in Library Management with Data-Driven Strategies to Drive Lifelong Learning Success

Sub-Strategy 3.1 (WO)

Improve Staff Management to Boost Library Performance (PNI-modified value = 0.5792, Weaknesses)

Procedures:

1. **Offer continuous learning programs** for library employees.
2. **Use AI to forecast staffing needs** based on user demand.
3. **Provide clear career paths** to attract and retain talented staff.

Sub-Strategy 3.2 (WO)

Strengthen Organizational Structure for Smoother Operations (PNI-modified value = 0.5349, Weaknesses)

Procedures:

1. **Create advisory boards** with users to align services with community needs.
2. **Develop digital dashboards** for tracking resources and getting user feedback.
3. **Encourage cross-department training** to improve teamwork and efficiency.

Sub-Strategy 3.3 (WO)

Set Clear Guidelines and Standards to Support Library Innovation (PNI-modified value = 0.5111, Weaknesses)

Procedures:

1. **Pair experienced leaders with new managers** to ensure consistent service quality.
2. **Standardize library operations** across different locations for efficiency.
3. **Encourage creative thinking** by giving staff freedom to propose new ideas.

Sub-Strategy 3.4 (WO)

Use User Feedback and Data to Adapt Services Quickly (PNI-modified value = 0.5106, Weaknesses)

Procedures:

1. **Leverage advanced data analytics and AI** to monitor user trends and make real-time service improvements.
2. **Deploy interactive kiosks, AI chatbots, and virtual forums** to efficiently collect user feedback and enhance library services.

3. **Perform** regular audits and user experience (UX) surveys, using insights from strategic workshops to refine and innovate the library experience.

Sub-Strategy 3.5 (WO)

Encourage Partnerships and Smart Resource Use for Long-Term Growth (PNI-modified value = 0.4881, Weaknesses)

Procedures:

1. **Partner with renowned libraries and experts** to develop learning frameworks and exchange best practices.
2. **Collaborate with educational institutions** to organize innovation challenges, professional workshops, and community-driven training programs.
3. **Create platforms** where businesses offer hands-on projects and mentorship to equip users with real-world skills.

Main Strategy 4

Empower Libraries with Emerging Technologies to Drive Hands-On Learning and Skill Development (PNI-modified value = 0.4164)

Sub-Strategy 4.1

Create Strong Policies to Keep Library Services Running Smoothly (W2T8)

Procedures:

1. **Work with policymakers** to create library-friendly regulations.
2. **Monitor new policies** to keep up with changes that might affect services.
3. **Develop a response plan** to handle unexpected disruptions.

Sub-Strategy 4.2

Upgrade Educational Services to Keep Up with Technology Changes (W2T10)

Procedures:

1. **Offer online courses** to make learning more flexible.
2. **Introduce virtual and augmented reality tools** for immersive experiences.
3. **Use AI-powered assistants** to help users find and access resources faster.

Sub-Strategy 4.3:

Improve Funding Strategies to Ensure Library Sustainability (W2T11)

Procedures:

1. **Explore different funding options** like grants, sponsorships, and memberships.
2. **Encourage local businesses** to invest in library development.
3. **Create fee-based services** that provide premium learning resources while keeping basic services free.

Sub-Strategy 4.4:

Enhance Information Resources to Reach More Communities (W2O18)

Procedures:

1. **Strengthen interlibrary loans and deploy mobile kiosks** to improve resource access for remote and underserved communities.
2. **Implement AI-driven catalog** recommendations and personalized digital resource delivery to enhance user experience.
3. **Engage users** in developing shared knowledge resources, including citizen-authored guides and digital repositories.

Main Strategy 5

Partner with Libraries Using Interactive and Inclusive Approaches to Build Stronger Communities Through Lifelong Learning (PNI-modified value= 0.3343)

Sub-Strategy 5.1

Strengthen Economic Support to Create Inclusive Learning Spaces (S3O4)

Procedures:

1. **Develop partnerships with corporations** to fund literacy and job training programs.
2. **Offer paid professional courses** while keeping basic education free.
3. **Introduce flexible pricing models** for premium library services.

Sub-Strategy 5.2

Use Technology to Promote Collaborative Digital Learning (S3O7)

Procedures:

1. **Provide free access to digital libraries** for low-income groups.
2. **Develop smart learning platforms** that adapt to users' needs.
3. **Ensure that all digital services** are accessible to people with disabilities.

Sub-Strategy 5.3

Support Policies That Encourage Seamless Library Integration (S3O13)

Procedures:

1. **Work with local governments** to secure consistent funding.
2. **Encourage policymakers** to recognize libraries as essential for lifelong learning.
3. **Engage the public** in discussions about how libraries can better serve their needs.

Sub-Strategy 5.4

Expand Community Services to Connect and Support More People (S3O16)

Procedures:

1. **Partner with local NGOs and community groups** to encourage user participation in social and volunteer activities.
2. **Use library spaces** for interactive events such as debate forums and cultural programs to promote engagement and community building.
3. **Organize hybrid events** that combine online and in-person experiences to enhance accessibility and cross-cultural connections.

Main Strategy 6

Enhance Library Services with AI and Smart Learning Tools to Lead in Lifelong Learning (PNI-modified value = 0.5014, Weaknesses)

Sub-Strategy 6.1 (WO)

Enhance Professional Skills to Advance Research Services

Procedures:

1. **Offer training programs** that focus on research skills.
2. **Bring in experts** to mentor library staff in specialized fields.
3. **Use AI tools** to help staff provide better research support.

Sub-Strategy 6.2 (WO)

Allocate Resources Smartly to Improve Research Results

Procedures:

1. **Analyze user data** to better allocate resources.
2. **Create flexible research spaces** that meet different study needs.
3. **Ensure fair access** to resources, especially in underserved areas.

Sub-Strategy 6.3 (WO)

Engage Volunteers to Inspire Community-Driven Innovation

Procedures:

1. **Recruit skilled volunteers** to support research and innovation projects.
2. **Create innovation labs** where volunteers and users collaborate on new ideas.
3. **Offer recognition and rewards** for volunteers who contribute significantly.

4.4 Summary of Chapter Four

Chapter Four presents a detailed analysis of the research results, offering insights into the internal and external factors influencing innovative library management within the framework of lifelong learning. The findings examine management and service work as well as lifelong learning factors, highlighting strengths, weaknesses, opportunities, and threats.

Internally, the analysis identifies strengths in management work, particularly in planning, budgeting, and information resource management, which exhibit the lowest Priority Needs Index (PNI) values. However, weaknesses are evident in human resource management, organizing, directing, and coordinating, which show higher PNI-modified values. In service work, educational training, information service, and space service emerge as strengths, while research service is a significant weakness. Lifelong learning factors such as "Learning to know" and "Learning to be" are strong across management and service dimensions, while "Learning to live together" and "Learning to do" reveal notable deficiencies.

Externally, environmental factors are assessed across political, economic, social, and technological dimensions. Opportunities are concentrated in "Learning to know," "Learning to live together," and "Learning to be," while "Learning to do" consistently emerges as a threat in both management and service contexts. Political and social factors are identified as the most significant external threats due to their high PNI-modified values. Conversely, economic and technological factors represent key opportunities, with lower PNI-modified values suggesting potential areas for growth and improvement.

In conclusion, Chapter Four identifies critical areas for enhancing library management practices, particularly in addressing weaknesses in "Learning to do" and leveraging opportunities in "Learning to know," "Learning to live together," and "Learning to be." This comprehensive analysis provides a foundation for developing targeted strategies to strengthen innovative library management and advance the principles of lifelong learning in diverse contexts.

Chapter 5

Conclusion, Discussion and Recommendations

This chapter summarizes the research results and makes recommendations based on some existing problems in this research and expectations for next-step research. This research started with the conceptual framework of innovative library management based on lifelong learning and then explored the current situation and desirable situation of innovative library management, analyzed the current strengths, weaknesses, opportunities, and threats based on the results of various data analyses, and a draft of an innovative library management strategy was formulated. Then, experts were invited to demonstrate the management strategy. Finally, after repeated revisions, innovative library management strategies were obtained.

Overall, Chapter Five successfully synthesizes the empirical findings, strategy development, and expert feedback from Chapter Four. It does so with consistent terminology, accurate data interpretations, and a logical progression from analysis to application and recommendation.

5.1 Conclusion of Research Results

5.1.1 Conclusion of Conceptual Framework of Innovative Library Management Based on the Concept of Lifelong Learning

The conceptual framework of innovative library management based on the concept of lifelong learning includes the main research components of innovative library management and lifelong learning. The researchers and the experts of the defense committee conducted an in-depth discussion on the conceptual framework of this study. They adjusted the conceptual framework based on the opinions of experts. The specific conceptual framework of the research is as follows:

1) **Innovative library management** includes Management work and Service work.

Management work refers to the operations of the innovative library for lifelong learning with the following elements:

1) Planning, 2) Organizing, 3) Human resource management, 4) Directing, 5) Coordinating, 6) Reporting, 7) Budgeting, 8) Information resource management.

Service work is the service operation of the innovative library, including the following components: 1) Information service, 2) Research service, 3) Space service, and 4) Educational training.

2) **Lifelong learning** includes Learning to know, Learning to do, Learning to live together, and Learning to be.

5.1.2 Conclusion of the Current and Desired Situations of Innovative Library Management Based on the Concept of Lifelong Learning

1) **Analysis of the current and desired situations of innovative library management based on lifelong learning from the internal environment.**

From the internal environment analysis of the current situation of innovative library management based on the concept of lifelong learning, it can be found that in terms of "Management work," "Information resource management" is the highest factor

of the average current situation ($\bar{x} = 3.6793$, $SD = 0.7642$). "Human Resource Management" is the lowest factor of the average current situation ($\bar{x} = 2.9079$, $SD = 0.7942$).

From the internal environment analysis of the desired situation of innovative library management based on the concept of lifelong learning, it can be found that in terms of "Management work," "Coordinating" is the highest factor of the average current situation ($\bar{x} = 4.6480$, $SD = 0.5113$). "Organizing" is the lowest factor of the average current situation ($\bar{x} = 4.5164$, $SD = 0.5533$).

From the internal environment analysis of the current situation of innovative library management based on the concept of lifelong learning, it can be found that in terms of "Service work," "Educational training" is the highest factor of the average current situation ($\bar{x} = 3.6974$, $SD = 0.7965$). "Research service" is the lowest factor of the average current situation ($\bar{x} = 3.0947$, $SD = 0.8306$).

From the internal environment analysis of the desired situation of innovative library management based on the concept of lifelong learning, it can be found that in terms of "Service work," "Space service" is the highest factor of the average desired situation ($\bar{x} = 4.6886$, $SD = 0.5271$). "Information service" is the lowest factor of the average desired situation ($\bar{x} = 4.5702$, $SD = 0.6082$).

From the internal environment analysis of the current conditions, the overall management level of innovative libraries is moderate ($\bar{x} = 3.3426$, $SD = 0.8049$). When classifying the components of library management, it can be found that the factor with the highest average condition is "Service work" ($\bar{x} = 3.4599$, $SD = 0.8244$), followed by "Management work" ($\bar{x} = 3.2253$, $SD = 0.7853$).

From the internal environment analysis of the desired conditions, the overall management level of innovative libraries is also highest ($\bar{x} = 4.6073$, $SD = 0.5455$). When classifying the components of library management, it can be found that the factor with the highest average condition is "Service work" ($\bar{x} = 4.6397$, $SD = 0.5727$), followed by "Management work" ($\bar{x} = 4.5748$, $SD = 0.5183$).

According to the classification of lifelong learning factors, from the internal environment analysis of innovative library management based on the concept of lifelong learning, the factor with the highest average current situation is "Learning to know" ($\bar{x} = 3.4664$, $SD = 0.8219$), then "Learning to be" ($\bar{x} = 3.4173$, $SD = 0.8464$) and "Learning to live together" ($\bar{x} = 3.3419$, $SD = 0.8404$). The factor with the lowest average current situation is "Learning to do" ($\bar{x} = 3.1450$, $SD = 0.8346$).

For the desired situation profile, the factor with the highest average desired situation is "Learning to be" ($\bar{x} = 4.6244$, $SD = 0.5295$), then "Learning to do" ($\bar{x} = 4.6198$, $SD = 0.5501$) and "Learning to know" ($\bar{x} = 4.5942$, $SD = 0.5566$). The factor with the lowest average desired situation is "Learning to live together" ($\bar{x} = 4.5901$, $SD = 0.5529$).

2) Analysis of the current and desired situations of innovative library management based on lifelong learning from the external environment.

The analysis of innovative library management based on lifelong learning principles across four external factors reveals the following:

- **Technological Factors:** The current situation is at a high level ($\bar{x} = 3.8074$, $SD = 0.7063$), with "learning to know" rated highest ($\bar{x} = 3.9566$, $SD = 0.7068$) and "learning to do" lowest ($\bar{x} = 3.5441$, $SD = 0.7001$).

- **Economic Factors:** Also at a high level ($\bar{x} = 3.7947$, $SD = 0.7238$), "learning to know" scores the highest ($\bar{x} = 3.8285$, $SD = 0.7154$), while "learning to do" is the lowest ($\bar{x} = 3.7088$, $SD = 0.6790$).
- **Political Factors:** At a moderate level ($\bar{x} = 3.3870$, $SD = 0.7772$), "learning to know" is the strongest ($\bar{x} = 3.4899$, $SD = 0.8205$), and "learning to do" the weakest ($\bar{x} = 3.2629$, $SD = 0.7377$).
- **Social Factors:** Also moderate ($\bar{x} = 3.3647$, $SD = 0.7405$), with "learning to be" ranked highest ($\bar{x} = 3.4684$, $SD = 0.7439$) and "learning to do" lowest ($\bar{x} = 3.2270$, $SD = 0.7109$).

These findings highlight the consistent strength of "learning to know" across external factors and the relative weakness of "learning to do," suggesting a focus area for future improvements in library management strategies.

The overall desired situation for all external factors is rated at the highest level: social factors ($\bar{x} = 4.7434$, $SD = 0.4900$), economic factors ($\bar{x} = 4.7334$, $SD = 0.4806$), political factors ($\bar{x} = 4.7260$, $SD = 0.4857$), and technological factors ($\bar{x} = 4.6973$, $SD = 0.4931$).

- **Political Factors:** "Learning to be" is the highest-rated ($\bar{x} = 4.7399$, $SD = 0.4837$), and "learning to live together" is the lowest ($\bar{x} = 4.7116$, $SD = 0.4940$).
- **Economic Factors:** "Learning to do" is the highest ($\bar{x} = 4.7550$, $SD = 0.4650$), while "learning to live together" is the lowest ($\bar{x} = 4.7046$, $SD = 0.5039$).
- **Social Factors:** "Learning to know" scores highest ($\bar{x} = 4.7596$, $SD = 0.4748$), and "learning to be" is the lowest ($\bar{x} = 4.7230$, $SD = 0.4940$).
- **Technological Factors:** "Learning to be" is the highest-rated ($\bar{x} = 4.7031$, $SD = 0.4905$), and "learning to do" is the lowest ($\bar{x} = 4.6965$, $SD = 0.4932$).

The analysis of the external environment reveals that the current situation for "Learning to know" ($\bar{x} = 3.6687$, $SD = 0.7500$), "Learning to be" ($\bar{x} = 3.6455$, $SD = 0.7500$), and "Learning to live together" ($\bar{x} = 3.6038$, $SD = 0.7407$) is rated at a high level, while "Learning to do" ($\bar{x} = 3.4357$, $SD = 0.7069$) is at a moderate level.

The analysis of the external environment indicates that the current situations for "Learning to know" ($\bar{x} = 4.7356$, $SD = 0.4763$), "Learning to do" ($\bar{x} = 4.7293$, $SD = 0.4809$), "Learning to be" ($\bar{x} = 4.7225$, $SD = 0.4902$), and "Learning to live together" ($\bar{x} = 4.7126$, $SD = 0.5019$) are all rated at the highest level.

The analysis of innovative library management based on lifelong learning principles shows that the current situation of external factors is generally at a high level ($\bar{x} = 3.5885$, $SD = 0.7370$). Among these, "Technical factors" rank highest ($\bar{x} = 3.8074$, $SD = 0.7063$), followed by "Economic factors" ($\bar{x} = 3.7947$, $SD = 0.7238$), "Political factors" ($\bar{x} = 3.3870$, $SD = 0.7772$), and "Social factors" at the lowest ($\bar{x} = 3.3647$, $SD = 0.7405$).

In contrast, the desired situation for external factors is rated at the highest level overall ($\bar{x} = 4.7251$, $SD = 0.4874$), with "Social factors" scoring the highest ($\bar{x} = 4.7434$, $SD = 0.4900$), followed by "Economic factors" ($\bar{x} = 4.7334$, $SD = 0.4806$), "Political factors" ($\bar{x} = 4.7260$, $SD = 0.4857$), and "Technical factors" as the lowest ($\bar{x} = 4.6973$, $SD = 0.4931$).

5.1.3 Conclusion of the Strengths, Weaknesses, Opportunities and Threats of Innovative Library Management Based on the Concept of Lifelong Learning

In the internal environment's second-level management variables, "Human resource management" has the highest PNI-modified value (0.5792), indicating the greatest weakness, while "Information resource management" has the lowest PNI-modified value (0.2405), reflecting the greatest strength. Weak areas include human resource management (0.5792), organizing (0.5349), directing (0.5111), reporting (0.5106), and coordinating (0.4881). Strengths include budgeting (0.2863), planning (0.2854), and information resource management (0.2405).

In the service work category, "Research service" has the highest PNI-modified value (0.5014), indicating it as the primary weakness, while "Educational training" has the lowest PNI-modified value (0.2586), reflecting it as a strength. Other strengths include space service (0.3283) and information service (0.2993).

For first-level variables, "Management work" has the largest PNI-modified value (0.4184), marking it as the main weakness in innovative library management, whereas "Service work," with a lower PNI-modified value (0.3410), is identified as a strength.

Analysis of the internal environment by lifelong learning factors shows that "Learning to do" has the highest PNI-modified value (0.4690), indicating the greatest weakness, while "Learning to know" has the lowest PNI-modified value (0.3254), reflecting the strongest area. Grouping the variables, "Learning to know" (0.3254) and "Learning to be" (0.3533) are strengths, whereas "Learning to live together" (0.3737) and "Learning to do" (0.4690) are weaknesses.

Analysis of the external environment by lifelong learning factors reveals that "Learning to do" has the highest PNI-modified value (0.3765), indicating it as the main threat, while "Learning to know" has the lowest PNI-modified value (0.2908), representing the strongest opportunity. Grouped by variables, "Learning to know" (0.2908), "Learning to live together" (0.3077), and "Learning to be" (0.2954) are categorized as opportunities, whereas "Learning to do" (0.3765) is identified as a threat.

Analysis of the external environment factors reveals that "Society" has the highest PNI-modified value (0.4098), indicating the greatest threat, while "Technology" has the lowest PNI-modified value (0.2337), representing the strongest opportunity. Grouped by variables, "Politics" (0.3953) and "Society" (0.4098) are identified as threats, whereas "Economy" (0.2390) and "Technology" (0.2337) are categorized as opportunities.

5.1.4 Conclusion of Management Strategies of the Innovative Library Based on the Concept of Lifelong Learning

Building upon the SWOT analysis and TOWS matrix outlined in previous chapters, this study synthesized a comprehensive strategic framework comprising six primary strategies, 24 secondary strategies, and 72 specific operational procedures. The detailed structure of these strategies is as follows:

The research presents a total of six main strategies, each supported by 24 sub-strategies and further delineated into 72 actionable procedures, providing a robust foundation for innovative library management aligned with lifelong learning principles.

Main Strategy 1**Modernize Library Management with Smart Solutions to Support Hands-On Learning for Lifelong Growth (PNI-modified value = 0.5264)****Sub-Strategy 1.1****Use Strong Information Management to Solve Social Challenges (W1T1)****Procedures:**

1. **Work with library users** to develop collections that meet local needs.
2. **Partner with businesses** to create digital libraries for underserved groups.
3. **Encourage library users** to promote reading and resource use in schools and workplaces.

Sub-Strategy 1.2**Make Smart Budget Decisions to Reduce Policy Risks (W1T2)****Procedures:**

1. **Hold budgeting meetings** with stakeholders to allocate funds wisely.
2. **Monitor policies** that impact libraries and adjust strategies accordingly.
3. **Use flexible financial models** to respond to changes in funding sources.

Sub-Strategy 1.3**Build Tech Partnerships to Overcome Technical Challenges (W1T9)****Procedures:**

1. **Host workshops** where users can help test and suggest new tech solutions.
2. **Collaborate with AI developers** to create chatbots and virtual learning tools.
3. **Offer digital literacy programs** to help users engage with library technology.

Sub-Strategy 1.4**Expand Funding Sources to Strengthen Financial Stability (W1T12)****Procedures:**

1. **Launch crowdfunding campaigns** to support library improvements.
2. **Introduce membership programs** with premium learning resources.
3. **Partner with local businesses** to sponsor library events and services.

Main Strategy 2**Redesign Library Management with Digital Innovations to Help Communities Learn and Grow Together (PNI-modified value = 0.4160)****Sub-Strategy 2.1****Make Libraries Community Hubs to Bring People Together (W3T3)****Procedures:**

1. **Encourage users to plan events** that address local needs like job training.
2. **Create online community spaces** where users can share ideas and organize events.
3. **Partner with civic groups** to offer more diverse and interactive programs.

Sub-Strategy 2.2**Create Lasting Library Policies to Handle External Challenges (W3T6)**

Procedures:

1. **Mobilize library users** to advocate for better policies at regional and national levels.
2. **Create an advisory group** to review and suggest improvements to library policies.
3. **Train community members** on how to contribute to library governance and policies.

Sub-Strategy 2.3

Use Technology to Promote Inclusive Learning for Everyone (W3O9)

Procedures:

1. **Develop library apps** to help users personalize their learning experience.
2. **Create interactive learning platforms** that encourage teamwork and collaboration.
3. **Host tech competitions** where users can develop new tools for library services.

Sub-Strategy 2.4

Tap Into Economic Trends to Strengthen Community Connections (W3O10)

Procedures:

1. **Partner with local industries** to provide skill-building programs that align with emerging job market needs.
2. **Transform library spaces** into interactive hubs that encourage collaboration and hands-on learning experiences.
3. **Organize competitions and projects** that tackle local economic challenges and support community growth.

Main Strategy 3

Overcome Weaknesses in Library Management with Data-Driven Strategies to Drive Lifelong Learning Success

Sub-Strategy 3.1 (WO)

Improve Staff Management to Boost Library Performance (PNI-modified value = 0.5792, Weaknesses)

Procedures:

1. **Offer continuous learning programs** for library employees.
2. **Use AI to forecast staffing needs** based on user demand.
3. **Provide clear career paths** to attract and retain talented staff.

Sub-Strategy 3.2 (WO)

Strengthen Organizational Structure for Smoother Operations (PNI-modified value = 0.5349, Weaknesses)

Procedures:

1. **Create advisory boards** with users to align services with community needs.
2. **Develop digital dashboards** for tracking resources and getting user feedback.
3. **Encourage cross-department training** to improve teamwork and efficiency.

Sub-Strategy 3.3 (WO)

Set Clear Guidelines and Standards to Support Library Innovation (PNI-modified value = 0.5111, Weaknesses)

Procedures:

1. **Pair experienced leaders with new managers** to ensure consistent service quality.
2. **Standardize library operations** across different locations for efficiency.
3. **Encourage creative thinking** by giving staff freedom to propose new ideas.

Sub-Strategy 3.4 (WO)

Use User Feedback and Data to Adapt Services Quickly (PNI-modified value = 0.5106, Weaknesses)

Procedures:

1. **Leverage advanced data analytics and AI** to monitor user trends and make real-time service improvements.
2. **Deploy interactive kiosks, AI chatbots, and virtual forums** to efficiently collect user feedback and enhance library services.
3. **Perform regular audits and user experience (UX) surveys**, using insights from strategic workshops to refine and innovate the library experience.

Sub-Strategy 3.5 (WO)

Encourage Partnerships and Smart Resource Use for Long-Term Growth (PNI-modified value = 0.4881, Weaknesses)

Procedures:

1. **Partner with renowned libraries and experts** to develop learning frameworks and exchange best practices.
2. **Collaborate with educational institutions** to organize innovation challenges, professional workshops, and community-driven training programs.
3. **Create platforms** where businesses offer hands-on projects and mentorship to equip users with real-world skills.

Main Strategy 4

Empower Libraries with Emerging Technologies to Drive Hands-On Learning and Skill Development (PNI-modified value = 0.4164)

Sub-Strategy 4.1

Create Strong Policies to Keep Library Services Running Smoothly (W2T8)

Procedures:

1. **Work with policymakers** to create library-friendly regulations.
2. **Monitor new policies** to keep up with changes that might affect services.
3. **Develop a response plan** to handle unexpected disruptions.

Sub-Strategy 4.2

Upgrade Educational Services to Keep Up with Technology Changes (W2T10)

Procedures:

1. **Offer online courses** to make learning more flexible.
2. **Introduce virtual and augmented reality tools** for immersive experiences.
3. **Use AI-powered assistants** to help users find and access resources faster.

Sub-Strategy 4.3:**Improve Funding Strategies to Ensure Library Sustainability (W2T11)****Procedures:**

1. **Explore different funding options** like grants, sponsorships, and memberships.
2. **Encourage local businesses** to invest in library development.
3. **Create fee-based services** that provide premium learning resources while keeping basic services free.

Sub-Strategy 4.4:**Enhance Information Resources to Reach More Communities (W2O18)****Procedures:**

1. **Strengthen interlibrary loans and deploy mobile kiosks** to improve resource access for remote and underserved communities.
2. **Implement AI-driven catalog** recommendations and personalized digital resource delivery to enhance user experience.
3. **Engage users** in developing shared knowledge resources, including citizen-authored guides and digital repositories.

Main Strategy 5**Partner with Libraries Using Interactive and Inclusive Approaches to Build Stronger Communities Through Lifelong Learning (PNI-modified value= 0.3343)****Sub-Strategy 5.1****Strengthen Economic Support to Create Inclusive Learning Spaces (S3O4)****Procedures:**

1. **Develop partnerships with corporations** to fund literacy and job training programs.
2. **Offer paid professional courses** while keeping basic education free.
3. **Introduce flexible pricing models** for premium library services.

Sub-Strategy 5.2**Use Technology to Promote Collaborative Digital Learning (S3O7)****Procedures:**

1. **Provide free access to digital libraries** for low-income groups.
2. **Develop smart learning platforms** that adapt to users' needs.
3. **Ensure that all digital services** are accessible to people with disabilities.

Sub-Strategy 5.3**Support Policies That Encourage Seamless Library Integration (S3O13)****Procedures:**

1. **Work with local governments** to secure consistent funding.
2. **Encourage policymakers** to recognize libraries as essential for lifelong learning.
3. **Engage the public** in discussions about how libraries can better serve their needs.

Sub-Strategy 5.4

Expand Community Services to Connect and Support More People (S3O16)

Procedures:

- 1. Partner with local NGOs and community groups** to encourage user participation in social and volunteer activities.
- 2. Use library spaces** for interactive events such as debate forums and cultural programs to promote engagement and community building.
- 3. Organize hybrid events** that combine online and in-person experiences to enhance accessibility and cross-cultural connections.

Main Strategy 6

Enhance Library Services with AI and Smart Learning Tools to Lead in Lifelong Learning (PNI-modified value = 0.5014, Weaknesses)

Sub-Strategy 6.1 (WO)

Enhance Professional Skills to Advance Research Services

Procedures:

- 1. Offer training programs** that focus on research skills.
- 2. Bring in experts** to mentor library staff in specialized fields.
- 3. Use AI tools** to help staff provide better research support.

Sub-Strategy 6.2 (WO)

Allocate Resources Smartly to Improve Research Results

Procedures:

- 1. Analyze user data** to better allocate resources.
- 2. Create flexible research spaces** that meet different study needs.
- 3. Ensure fair access** to resources, especially in underserved areas.

Sub-Strategy 6.3 (WO)

Engage Volunteers to Inspire Community-Driven Innovation

Procedures:

- 1. Recruit skilled volunteers** to support research and innovation projects.
- 2. Create innovation labs** where volunteers and users collaborate on new ideas.
- 3. Offer recognition and rewards** for volunteers who contribute significantly.

5.2 Discussion of Research Results

5.2.1 Discussion of the Conceptual Framework of Innovative Library Management Based on the Concept of Lifelong Learning

The development of innovative libraries in China is a relatively recent phenomenon, driven by the increasing demand for accessible lifelong learning. However, this field lacks standardized management frameworks and evaluation systems, hindering comprehensive integration into lifelong learning models. While these libraries are expanding rapidly, their management strategies remain fragmented and lack cohesion. This gap limits their potential to fully support lifelong learning, compounded by the scarcity of academic research in this area.

Innovative libraries can serve as essential platforms for lifelong learning by aligning their management and services with UNESCO's lifelong learning framework. Addressing deficiencies in human resource management, service personalization, and

the integration of advanced technologies would enable these libraries to better meet community needs and foster a culture of continuous learning.

Relevant frameworks and research provide critical insights. UNESCO's *Learning: The Treasure Within* (Delors et al., 1996) identifies the four pillars of lifelong learning—learning to know, learning to do, learning to live together, and learning to be—which informed the evaluation variables in this study. Fayol's management principles (Fayol, 1916), emphasizing planning, organizing, directing, coordinating, and controlling, guided the operational variables for innovative libraries. Additionally, the *Public Library Law of China* and local initiatives like the "Heluo Book Garden" in Luoyang (Office of the People's Government of Luoyang City, 2021) provided structural foundations for the development of management strategies.

By leveraging these frameworks, innovative libraries can enhance their role as hubs for lifelong learning, addressing current gaps and aligning their strategies with global best practices.

The conceptual framework developed in this study incorporates two key dimensions:

1. **Management Work:** This includes variables such as planning, organizing, human resource management, directing, coordinating, reporting, budgeting, and information resource management. These elements are rooted in Fayol's management principles, adapted to the specific context of innovative libraries.
2. **Service Work:** This focuses on user-oriented activities, including information services, research support, space provision, and educational training, reflecting global trends in inclusive and adaptable library services (Hay & Foley, 2009).

Refined through advisor consultations, policy analysis, and prior research, this framework addresses significant gaps in innovative library management by integrating management principles with lifelong learning objectives. It offers a structured approach to improve library operations and societal contributions while laying a foundation for future research and policy development to advance libraries' role in lifelong learning.

5.2.2 Discussion of the Current and Desired Situations of Innovative Library Management Based on the Concept of Lifelong Learning

1) The current and desired situations of innovative library management based on the concept of lifelong learning from the internal environment.

The analysis of the internal environment for innovative library management within the framework of lifelong learning reveals the following:

In "Management Work," the highest-rated factor in the current situation is "Information Resource Management," reflecting an inherent strength due to libraries' extensive repositories of paper and digital resources, making them key venues for lifelong learning. This aligns with Zhang (2020), who highlighted libraries' role as comprehensive repositories of knowledge, and Deng (2023), who emphasized their capacity to provide resources for all demographics. Conversely, "Human Resource Management" is the lowest-rated factor, indicating a significant weakness, as noted by Guo (2023), who pointed out gaps in personnel training and management efficiency in libraries. This shortfall limits innovative libraries' ability to fully utilize their resources, underscoring the need for skilled personnel to effectively manage and promote these assets, as highlighted by Li (2022) in discussions about enhancing library operations to support lifelong learning.

"Coordinating" has the highest average desired situation among management factors, while "Organizing" has the lowest. The emphasis on "Coordinating" highlights the critical role of fostering relationships between innovative libraries and external institutions, as well as establishing cooperative networks and alliances, as supported by Li (2022), who emphasized the need for collaborative approaches to enhance library services. This is essential for the sustainable development of lifelong learning, aligning with Deng's (2023) findings on the importance of partnerships in library operations. Regarding "Organizing," the strong guidance and emphasis from national and local governments in recent years, such as the policies highlighted by Zhang (2020) and initiatives like the "Heluo Book Garden" (Office of the People's Government of Luoyang City, 2021), have largely unified departmental understanding of lifelong learning goals, reducing its priority as an area for improvement.

The internal environment analysis of innovative library management based on lifelong learning reveals that in "Service Work," "Education Service" ranks highest in the average current situation, while "Research Service" ranks lowest. This aligns with Zhang (2020), who noted that innovative libraries have made strides in promoting education and training but face challenges in supporting advanced research needs. Similarly, Guo (2023) emphasized the limited development of research-focused services in many libraries, highlighting gaps in collaboration and resource support. These findings also resonate with Deng's (2023) observations about the need for comprehensive service improvements to address users' complex research demands. This underscores the importance of enhancing research-oriented services in innovative libraries to fully realize their potential for lifelong learning support.

The analysis reveals that "Space Services" ranks highest in the average desired situation, while "Information Services" ranks lowest. This indicates that users place significant value on a conducive learning environment and have high expectations for the quality of learning spaces. Conversely, users have relatively low expectations for improving information services, as innovative libraries already perform well in this area and users can access resources through various other means. These findings align with the emphasis on creating effective learning spaces as highlighted by Zhang (2020) and the advantages of innovative libraries in resource accessibility discussed by Deng (2023) and Guo (2023). Furthermore, the importance of space services in fostering lifelong learning echoes the observations of Li (2022) regarding the role of innovative libraries in addressing user needs.

According to the classification of lifelong learning variables, the analysis of the internal environment of innovative library management based on the concept of lifelong learning shows that "Learning to know" has the highest average current situation, while "Learning to do" has the lowest. This aligns with Zhang (2020), who noted the success of innovative libraries in enhancing users' cognitive learning and basic education. However, the research also highlights shortcomings in equipping users to apply professional knowledge in practice, which mirrors observations by Guo (2023) regarding gaps in practical skills training in libraries. Additionally, Shen et al. (2018) pointed out similar weaknesses in China's education system, emphasizing the need to bridge the gap between theoretical knowledge and practical application, a critical area for innovative libraries to address.

For the desired situation, "Learning to be" has the highest average desired situation, while "Learning to live together" has the lowest. This indicates that users

prioritize personal development and self-worth, aligning with Zhang (2020), who emphasized the importance of libraries in fostering individual growth and creativity. The relatively lower expectation for mutual respect, care, and understanding reflects findings by Deng (2023), who noted that advancements in internet technology and global cultural exchanges have enhanced mutual respect and understanding among users. However, the emphasis on achieving personal success aligns with Shen et al. (2018), who highlighted individuals' strong aspirations for self-improvement in a competitive knowledge-driven society.

2) The current and desired situations of innovative library management based on the concept of lifelong learning from the external environment

The research analyses innovative library management based on lifelong learning principles through four external environment factors (PEST). Among political and economic factors, "Learning to know" ranks highest, while "Learning to do" ranks lowest. Similarly, under social factors, "Learning to be" is the best, and "Learning to do" is the weakest. For technological factors, "Learning to know" is again the highest-rated, with "Learning to do" the lowest. These findings align with Zhang (2020) and Deng (2023), who noted that basic skills such as reading, writing, and numeracy are generally well-developed due to societal advancements. However, "Learning to do" consistently ranks lowest under all PEST factors, mirroring internal environment results and aligning with Shen et al. (2018) and Guo (2023), who highlighted challenges in translating theoretical knowledge into practical skills, reflecting broader issues in China's current education system.

For the desired situation, among political factors, the highest is "Learning to be," and the lowest is "Learning to live together." For economic factors, "Learning to do" ranks highest, while "Learning to live together" is the lowest. Under social factors, "Learning to know" is the highest, and "Learning to be" the lowest. Among technical factors, "Learning to be" ranks highest, and "Learning to do" the lowest. These findings highlight discrepancies between desired and current situations, as variations in users' education levels, family environments, and personal circumstances influence expectations. This aligns with Shen et al. (2018), who emphasized the role of diverse socioeconomic backgrounds in shaping lifelong learning priorities, and Zhang (2020), who noted that user expectations often differ based on access to resources and technology. Additionally, Deng (2023) observed that technical factors significantly shape aspirations for personal growth, reflecting users' desire for self-improvement.

The analysis of innovative library management based on lifelong learning reveals that the technical factor has the highest average current situation, while the social factor ranks lowest. Conversely, social factors hold the highest average desired situation, and technical factors rank lowest. This indicates that the rapid development of science and technology has met the current needs for lifelong learning, reducing users' urgency for further advancements in this area. These findings align with Deng (2023), who noted the technological advancements in libraries facilitating user engagement.

However, the social factor is the weakest in the current situation, reflecting challenges related to societal, cultural, and demographic issues, as highlighted by Guo (2023). The high expectation for social factors suggests public concerns about future social stability and cultural preservation, consistent with Zhang's (2020) observations

about the impact of social dynamics on public libraries. These results also echo the mainstream discourse in China, emphasizing the need to address societal challenges to enhance the role of libraries in lifelong learning.

This discussion highlights the necessity of addressing the gaps identified through the Priority Needs Index (PNI-Modified) analysis with targeted interventions. Enhancing human resource management and research services is pivotal in increasing libraries' capacity to support lifelong learning effectively and ensuring they are more attuned to the evolving needs of the community.

Management Work -- Current Strengths: Information resource management emerged as the strongest current component ($\bar{x} = 3.6793$, $SD = 0.7642$), reflecting innovative libraries' effective management of digital and physical resources. This aligns with global best practices, as highlighted by Zhang (2020) and supported by Deng (2023), who emphasized the importance of resource accessibility in fostering lifelong learning. **Critical Gaps:** Human resource management demonstrated the highest PNI-modified value (0.5792), indicating a significant area for improvement. Identified challenges include inadequate training opportunities, lack of staff incentives, and limited capacity to integrate advanced technologies such as AI and big data into library operations. These findings are consistent with Guo (2023), who highlighted similar deficiencies in library workforce development, and Li (2022), who stressed the necessity of building technological competencies among library staff to meet evolving user demands.

Service Work -- Current Strengths: Educational training emerged as the strongest area in current service operations ($\bar{x} = 3.6974$, $SD = 0.7965$), reflecting the effectiveness of innovative libraries in community outreach and skill development. This aligns with Zhang (2020), who highlighted the role of libraries in fostering lifelong learning through training initiatives, and Deng (2023), who emphasized their contributions to improving public educational opportunities. **Critical Gaps:** Research services displayed the highest PNI-modified value (0.5014), indicating significant inefficiencies in supporting research activities and fostering collaboration. These gaps limit the libraries' potential to function as vital knowledge hubs for academic and professional users. This is consistent with Guo (2023), who identified similar challenges in libraries' capacity to address advanced research needs, and Li (2022), who stressed the importance of enhancing research-focused services to meet the demands of specialized user groups.

Challenges in Addressing Gaps in Library Services

Several systemic issues hinder the ability of innovative libraries to address critical gaps and maximize their potential as hubs for lifelong learning. One significant challenge is limited funding. The lack of stable financial resources severely restricts libraries' capacity to recruit skilled professionals and invest in advanced research tools, which are essential for enhancing their services and meeting community needs (Chen & Guo, 2018). Without adequate financial support, libraries struggle to maintain high-quality operations and adapt to technological advancements.

Another pressing issue is the digital divide. Disparities in access to technology, particularly in rural areas, exacerbate inequalities in lifelong learning opportunities. These disparities prevent certain populations from fully benefiting from the digital resources and services that libraries offer, creating a significant barrier to inclusive

educational development (Chen et al., 2018). Bridging this divide is essential to ensure equitable access to knowledge and learning tools for all community members.

A third challenge is the lack of awareness among community members regarding libraries' role in promoting lifelong learning. Insufficient understanding of the services and resources provided by libraries limits their utilization and reduces their overall impact. This lack of awareness undermines libraries' efforts to foster a culture of continuous learning and engagement within the community.

Addressing these challenges requires a concerted effort from policymakers, stakeholders, and library administrators. By ensuring stable funding, bridging the digital divide, and increasing public awareness of libraries' transformative potential, these institutions can better fulfil their role as catalysts for lifelong learning and social development.

This discussion underscores the dual imperative of resolving immediate operational challenges while simultaneously formulating strategic frameworks for long-term sustainable development. Prioritizing enhancements in human resource management and research services will enable Luoyang's innovative libraries to more effectively align with the principles of lifelong learning, thereby increasing their overall societal impact.

5.2.3 Discussion of the Strengths, Weaknesses, Opportunities and Threats of Innovative Library Management Based on the Concept of Lifelong Learning

In the analysis of secondary variables within the internal environment, "Human resource management" recorded the highest PNI-modified value, while "Information resource management" had the lowest. Based on the grouping method, weaknesses in management work include human resource management, organizing, guiding, reporting, and coordinating. Conversely, strengths were identified in budgeting, planning, and information resource management.

These findings highlight the urgent need to address human resource management, which emerges as a critical area for improvement in the management of innovative libraries. This aligns with Guo (2023), who emphasized the necessity of improving staff training and capacity-building to enhance library operations. On the other hand, information resource management stands out as the most satisfactory component, consistent with Zhang (2020) and Deng (2023), who recognized the effective handling of digital and physical resources as a core strength of innovative libraries.

The stark contrast between the strong performance in managing information resources and the inadequacy of human resource management reflects the central challenge faced by innovative libraries. This imbalance underscores the difficulty of optimizing vast information resources amidst a shortage of skilled personnel, as noted by Li (2022), who stressed the importance of aligning resource management with workforce development to maximize the libraries' potential in supporting lifelong learning.

In the analysis of service work, "Research service" recorded the highest PNI-modified value, indicating a significant weakness, while "Education service" had the lowest PNI-modified value, highlighting it as a strength. Based on the grouping method, research service is identified as the primary weakness, whereas space service, information service, and education service are strengths.

The research findings demonstrate that the overall performance of service work in innovative libraries is strong, with three out of four main factors categorized as strengths. However, the weakness in research services corresponds to challenges identified in human resource management within the management work domain. This alignment underscores the critical impact of personnel shortages, particularly a lack of professional researchers, on the ability of innovative libraries to deliver effective research consulting services.

These results are consistent with Zhang (2020), who emphasized the need for skilled professionals to support advanced library functions. Guo (2023) similarly highlighted gaps in providing specialized research services due to limited human resources. Furthermore, Li (2022) noted that the success of education and information services in libraries often contrasts with the underperformance of research services, reinforcing the need for targeted workforce development in this area.

Among the primary variables in the internal environment, "Management work" exhibited the highest PNI-modified value, indicating the most significant weakness, while "Service work" had the lowest PNI-modified value, highlighting it as a strength. Based on the grouping method, management work is identified as the primary weakness, whereas service work is recognized as the strength of innovative library management.

The findings suggest that service work in innovative libraries is well-executed and has gained user recognition, aligning with Zhang (2020), who emphasized the success of libraries in delivering user-centric services such as education and information support. However, internal management work remains relatively poor, with three out of eight factors categorized as weaknesses, underscoring the urgent need to enhance management practices. This corresponds to observations by Guo (2023), who identified inefficiencies in planning, organizing, and human resource management as persistent challenges in library operations. Deng (2023) further stressed the critical role of robust internal management in ensuring the sustainability and effectiveness of library services, highlighting the necessity for targeted improvements in this area.

Under the influence of the internal environment, an analysis of lifelong learning factors using PNI-modified values reveals that "Learning to do" has the highest value, indicating the most significant weakness, while "Learning to know" has the lowest value, representing the strongest area. Grouping these variables shows that "Learning to know" and "Learning to be" are strengths, while "Learning to live together" and "Learning to do" are weaknesses. Similarly, under the influence of four external environmental factors, "Learning to do" also has the highest PNI-modified value, and "Learning to know" the lowest. Grouped results indicate that "Learning to know," "Learning to live together," and "Learning to be" are strengths, whereas "Learning to do" remains a weakness.

The research findings suggest that the internal and external environments have a similar impact on lifelong learning factors. "Learning to do" emerges as the most critical issue requiring attention, while "Learning to know" is consistently the strongest factor. This reflects challenges similar to those in China's current educational landscape, particularly the need to transform theoretical knowledge into practical application skills. Zhang (2020) highlighted this issue, emphasizing the gap between knowledge acquisition and application. Guo (2023) further noted the importance of developing practical abilities in lifelong learning strategies. These findings underscore the

necessity for innovative libraries to develop targeted strategies to address this gap, focusing on enhancing practical learning opportunities to complement theoretical knowledge.

In order to present the discussion on the Strengths, Weaknesses, Opportunities, and Threats (SWOT) of innovative library management based on lifelong learning more precisely, it is essential to articulate each aspect clearly and provide a detailed analysis supported by relevant evidence and research as follows:

Strengths

Innovative libraries in Luoyang possess inherent strengths that establish them as key facilitators of lifelong learning. One notable strength is their integration of advanced technologies, including RFID, AI, and big data analytics. These technologies streamline library services, enable personalized user experiences, and enhance resource management efficiency, aligning with global best practices in library innovation (Hu, 2016). Additionally, their strategic location in urban centers and the provision of 24/7 self-service capabilities ensure accessibility, catering to the diverse needs of the community (Li, 2022).

Furthermore, these libraries actively promote inclusivity by offering educational training programs and creating spaces for cultural exchange, thus addressing both social and educational objectives. Their efforts align with UNESCO's lifelong learning pillars (Delors et al., 1996), emphasizing their role in fostering knowledge acquisition, skill development, and community cohesion. This multifaceted approach highlights the innovative libraries' capacity to meet contemporary educational and social demands effectively.

Weaknesses

Despite their strengths, innovative libraries face significant challenges that undermine their effectiveness. The most critical weakness is the lack of human resource development. Human resource management recorded the highest Priority Needs Index (PNI-modified value = 0.5792), reflecting substantial gaps in staff recruitment, training, and retention. These findings align with Hao et al. (2018), who identified stagnation in talent development as a persistent issue in library operations, limiting the ability to meet evolving user demands.

Additionally, inadequate financial resources constrain the acquisition of advanced technologies and hinder the maintenance of library infrastructure. This challenge is particularly acute in economically disadvantaged regions, where limited funding exacerbates the digital divide and restricts equitable access to lifelong learning opportunities. These observations are consistent with Chen and Guo (2021), who emphasized the financial strain on libraries in underserved areas, further limiting their potential to foster inclusive and innovative educational services.

Opportunities

The evolving educational landscape offers substantial opportunities for innovative libraries to enhance their impact. Government initiatives promoting a lifelong learning society provide a robust framework for library development. For instance, national policies emphasizing lifelong education create pathways for libraries to secure funding and policy support to expand their programs and services (Xi, 2017). This alignment with strategic national goals strengthens libraries' role in fostering inclusive education.

Technological advancements also present significant potential for innovation. The adoption of AI-driven personalized learning platforms and virtual reality technologies allows libraries to tailor services to individual user needs and increase engagement. This approach aligns with Li's (2022) findings on the transformative role of technology in improving library services. Additionally, the growing focus on community engagement provides opportunities for libraries to collaborate with academic institutions and civic organizations. Such partnerships can cultivate a culture of shared learning, consistent with Deng's (2023) emphasis on libraries as collaborative hubs for education and cultural exchange. These opportunities position innovative libraries as pivotal agents in advancing lifelong learning and community development.

Threats

One of the most significant threats to innovative library management is the absence of standardized regulations and evaluation systems. The lack of unified guidelines complicates efforts to maintain consistent service quality and management practices across different regions. This challenge aligns with Zhang (2020), who emphasized the importance of regulatory frameworks in ensuring equitable and efficient library operations.

Another persistent issue is the digital divide, particularly in rural areas where access to technological resources remains limited. This disparity hinders effective library utilization and exacerbates inequalities in lifelong learning opportunities, as noted by Guo (2023), who highlighted the technological challenges faced by libraries in underserved communities.

A further concern is low public awareness of the role of innovative libraries in promoting lifelong learning. This lack of awareness reduces community engagement and restricts the libraries' ability to achieve their educational and cultural objectives. These findings are consistent with Deng (2023), who identified public outreach and advocacy as critical components for enhancing the impact of innovative libraries. Addressing these threats is crucial to ensuring the sustainability and effectiveness of libraries in fostering lifelong learning.

In conclusion, the SWOT analysis underscores the multifaceted dynamics of innovative library management within the framework of lifelong learning. To leverage existing strengths and opportunities, it is essential to address identified weaknesses and mitigate potential threats through targeted strategic interventions. Prioritizing human resource development, ensuring sustainable funding, and enhancing public awareness are critical steps to enable innovative libraries to realize their full potential as pivotal hubs for lifelong learning.

5.2.4 Discussion of Management Strategies of the Innovative Library Based on the Concept of Lifelong Learning

Management Strategies for Innovative Libraries Based on Lifelong Learning

The management strategies developed in this study represent the culmination of four months of iterative discussions with advisors, expert evaluations, and feedback from library managers. These strategies were refined through seven rounds of revisions to integrate theoretical insights with practical considerations, aligning internal factors with external environmental dynamics.

Formulation Process and Challenges

In the initial phase of strategy formulation, the proposed strategies were primarily based on theoretical conclusions derived from data analysis. However, they lacked detailed, descriptive language and actionable implementation plans, limiting their practicality. During the middle stages, the strategies were heavily focused on internal environment analysis and failed to fully incorporate external environmental data, resulting in an imbalance. Repeated discussions with advisors addressed these challenges, ensuring the final strategies were both comprehensive and applicable. The advisor's patient guidance was instrumental in resolving these issues and shaping a robust management framework.

Addressing Gaps and Challenges in Lifelong Learning

The development of management strategies for innovative libraries in Luoyang City highlights critical gaps in aligning these libraries with the principles of lifelong learning. Despite their rapid expansion, innovative libraries in China often lack standardized management strategies and fail to fully utilize their educational potential. Their primary focus remains on basic services, such as book lending and providing physical spaces, while their role in lifelong learning is underdeveloped. Additionally, the slow implementation of lifelong learning policies and insufficient government guidance exacerbate these challenges (The Wenzhou Municipal People's Government Office, 2020; The Luoyang Municipal People's Government Office, 2021).

Proposed Strategic Approaches

This study argues for a multidimensional management strategy that integrates advanced technologies, community needs, and policy frameworks. By adopting strategic approaches that prioritize operational efficiency and user-centric services, innovative libraries can enhance their educational and cultural impact. Research supports the role of libraries as critical platforms for lifelong learning. UNESCO's *Learning: The Treasure Within* underscores the importance of accessible educational platforms for continuous learning (Delors et al., 1996). Public libraries in China have historically played a vital role in national education and cultural development (Hu, 2016). However, while foundational regulations like the *Public Library Law of the People's Republic of China* (2017) and local measures, such as the "Heluo Book Garden" initiative, provide guidelines for library operations, they lack strategies specifically tailored to lifelong learning (The Luoyang Municipal People's Government Office, 2021).

By addressing these gaps through targeted management strategies, innovative libraries can position themselves as pivotal platforms for lifelong learning, fostering community engagement and advancing national educational objectives.

Proposed Management Strategies for Innovative Libraries

The development of management strategies for innovative libraries is crucial to align their operations with the principles of lifelong learning. This study proposes a series of strategies aimed at addressing critical weaknesses and leveraging strengths to ensure libraries fulfill their educational and cultural potential.

Enhanced Human Resource Management

The study identified human resource management as a critical area for improvement, with a Priority Needs Index (PNI-modified value = 0.5792) highlighting deficiencies such as limited training opportunities and insufficient professional development. These findings align with Guo (2023), who noted the lack of skilled personnel as a major obstacle to effective library operations. To address this, comprehensive training programs focusing on digital literacy, AI integration, and community engagement are essential. Performance-based incentives should also be introduced to attract and retain skilled professionals, as emphasized by Li (2022), who stressed the importance of competitive compensation in building a capable workforce.

Technological Integration

The integration of advanced technologies, such as RFID and AI, has the potential to revolutionize library operations and services, offering personalized learning experiences. Zhang (2020) underscored the transformative role of technology in enhancing library services. Strategies include implementing AI-driven systems to recommend resources tailored to user preferences and expanding digital collections to ensure equitable access across urban and rural areas. This aligns with Deng (2023), who highlighted the need to bridge the digital divide to promote inclusive lifelong learning.

Community-Centric Services

Lifelong learning thrives on community involvement and accessibility. Libraries must serve as inclusive spaces that address diverse needs. To achieve this, partnerships with local organizations can facilitate workshops, maker spaces, and cultural events. Tailored programs for specific demographic groups, such as seniors and youth, are also critical. This approach reflects UNESCO's emphasis on libraries as hubs for community engagement and education (*Learning: The Treasure Within*, Delors et al., 1996). Furthermore, Chen and Guo (2021) noted that community-centric services enhance social cohesion and foster a culture of shared learning.

Standardized Policies and Evaluation Frameworks

The lack of unified guidelines for library management hinders the consistent delivery of quality services. Developing a national framework for innovative library management, including performance metrics aligned with lifelong learning goals, is essential. The *Public Library Law of the People's Republic of China* (2017) provides foundational guidelines but lacks specificity regarding lifelong learning strategies (The Luoyang Municipal People's Government Office, 2021). Collaboration with policymakers can help standardize practices and ensure alignment with national education objectives.

Sustainable Funding Models

Financial constraints remain a significant barrier to the expansion and maintenance of innovative libraries. Chen et al. (2018) emphasized the importance of sustainable funding for library development. Public-private partnerships and alternative funding sources, such as grants and community sponsorships, can provide much-needed financial support. These approaches can help libraries expand their services and maintain state-of-the-art facilities.

Implications and Future Directions

The proposed management strategies aim to bridge the gap between policy and practice, enabling innovative libraries to fulfil their role as hubs for lifelong learning. By addressing operational and strategic challenges, these libraries can contribute to building a knowledge-based society and enhancing social cohesion. As Zhang (2020) and Deng (2023) have suggested, adopting a holistic approach to library management is essential for maximizing their impact.

In conclusion, these strategies emphasize the importance of integrating advanced technologies, fostering community engagement, and developing robust management practices. Innovative libraries have the potential to become pivotal institutions in promoting continuous education and cultural enrichment. By implementing these strategies, they can fully realize their role as key drivers of lifelong learning and societal development.

5.3 Research Recommendations

5.3.1 Recommendations for Implementation

To effectively utilize the research findings, the following recommendations are aligned with the key results of this study:

Research Result 1: Strengthening Human Resource Management

The study identified human resource management as a significant weakness, with a Priority Needs Index (PNI-modified value) indicating urgent improvement needs. Deficiencies in staff recruitment, training, and retention were highlighted as major challenges.

Recommendation:

Human resource management must be enhanced to improve the efficiency and effectiveness of library operations. Library administrators and policymakers should develop structured training programs focusing on digital literacy, AI integration, and community engagement. Additionally, introducing performance-based retention programs and cross-library staff exchanges can help attract and retain skilled professionals. A well-trained workforce ensures high-quality services and adapts to evolving library technologies.

Research Result 2: Expanding Technological Integration

The findings emphasized that advanced technologies such as AI, RFID, and big data analytics can significantly enhance library operations and user experiences, although their implementation remains inconsistent.

Recommendation:

Integrating advanced technologies into library services is crucial for improving accessibility and efficiency. Library IT teams, government agencies, and technology developers should collaborate to implement AI-driven cataloging systems, virtual learning platforms, and blockchain-based data security. Providing digital literacy programs for library users will further enhance accessibility and ensure that all community members can benefit from technological advancements. This will create a more user-friendly and efficient library environment.

Research Result 3: Enhancing Community Engagement in Libraries

The study revealed that libraries' success in fostering lifelong learning depends on their ability to address diverse community needs through tailored services and programs.

Recommendation:

Libraries should strengthen their role as community learning hubs by offering programs tailored to local needs. Library management and local organizations should work together to develop skill workshops, maker spaces, and cultural initiatives that foster engagement. Special programs for different demographics, such as digital literacy for seniors and coding workshops for young learners, can ensure libraries remain inclusive. Encouraging volunteer participation and gathering public feedback will help shape more relevant and impactful services.

Research Result 4: Establishing Standardized Policies and Evaluation Frameworks

The absence of unified guidelines and performance metrics was identified as a barrier to consistent service quality and effective library management.

Recommendation:

Developing clear policies and evaluation standards is necessary for maintaining consistency in library management. Policymakers, government agencies, and education boards should establish national guidelines to define library operations and service expectations. Implementing a structured evaluation framework aligned with international best practices will enable libraries to measure their impact effectively. Regular policy reviews will ensure libraries remain adaptable to social and technological changes, promoting long-term service improvements.

Research Result 5: Securing Sustainable Funding Methods

The research indicated that insufficient funding limits libraries' ability to expand services, adopt advanced technologies, and maintain infrastructure.

Recommendation:

To ensure financial stability, libraries should explore diverse funding sources beyond traditional government support. Library directors, financial planners, and public-private stakeholders should develop partnerships with businesses and organizations to secure long-term sponsorships. Alternative revenue models should also be considered, such as crowdfunding, membership-based services, and grant applications. Financial sustainability will enable libraries to expand their services, adopt new technologies, and reach underserved communities.

Research Result 6: Enhancing Libraries' Role in Lifelong Learning

The findings highlighted that while libraries support basic services like lending and space provision, they underutilize their potential to foster lifelong learning through advanced educational and research-focused services.

Recommendation:

Libraries should further integrate with formal education systems to support lifelong learning. Universities, online learning platforms, and library education coordinators should collaborate to offer research assistance, AI-driven tutoring, and interactive learning modules. Expanding mentorship programs and self-paced courses will ensure libraries provide valuable resources for students and professionals.

Strengthening the connection between libraries and education systems will maximize their impact on knowledge development and skill-building.

Conclusion

These recommendations provide actionable steps for addressing the identified challenges and leveraging strengths in innovative library management. By implementing these recommendations, libraries can transform into modern, financially sustainable, and community-driven institutions that fully support lifelong education and digital transformation.

5.3.2 Recommendations for Further Research

The findings and methodology used in this study provide valuable insights into the management of innovative libraries based on lifelong learning. To build on these insights, the following recommendations for further research are aligned with the results and methodologies employed:

Research Result 1: Human Resource Management as a Critical Weakness

Recommendation: Exploring Advanced Human Resource Development Models

Future research should focus on improving human resource management in libraries by exploring effective models for recruitment, training, and staff retention. Library science and human resource management researchers should conduct comparative studies across different regions to identify best practices. Longitudinal studies can help assess the impact of performance-based incentives on staff motivation and service quality. A skilled and well-trained workforce is essential for efficiently managing innovative libraries and delivering high-quality services.

Methodology Used: The study utilized Priority Needs Index (PNI-modified value) analysis to identify human resource management as a significant weakness in library operations.

Research Result 2: Technological Integration Enhances Library Services

Recommendation: Investigating Emerging Technologies for Library Services

As technology rapidly evolves, research should explore how libraries can integrate emerging digital tools to enhance service delivery. Technology researchers and IT teams should study the feasibility of implementing AI-driven library assistants, blockchain for secure data management, and virtual reality for immersive learning experiences. Comparing user satisfaction in libraries that adopt these technologies versus traditional models will provide valuable insights into their real-world effectiveness. Adopting new technologies will ensure libraries remain relevant, efficient, and user-friendly.

Methodology Used: Mixed-methods analysis was applied to examine the role of advanced technologies such as RFID and AI in library operations.

Research Result 3: Community-Centric Services Drive Lifelong Learning

Recommendation: Assessing the Long-Term Impact of Community-Centric Services

Libraries play a vital role in community engagement and lifelong learning, but further research is needed to understand their long-term impact. Social science researchers and library administrators should conduct case studies on libraries with strong community involvement programs. Measuring the influence of maker spaces, skill workshops, and literacy programs on local populations will help determine

their effectiveness. Libraries that foster strong community connections contribute to education, skill development, and social inclusion.

Methodology Used: Surveys and stakeholder feedback were used to evaluate the role of community engagement in enhancing library services.

Research Result 4: Absence of Standardized Policies and Evaluation Frameworks

Recommendation: Developing Standardized Policies and Evaluation Frameworks

Research should also focus on establishing clear policies and evaluation methods for libraries to ensure consistency in management and service quality. Policymakers and educational institutions should conduct studies comparing different policy models across regions to identify best practices. Developing a national framework with structured performance evaluation metrics will allow libraries to measure their success and make data-driven improvements. Standardized policies will lead to better governance, resource allocation, and long-term sustainability.

Methodology Used: SWOT analysis and expert consultations highlighted the lack of unified guidelines as a critical barrier to consistent library management.

Research Result 5: Financial Constraints as a Barrier to Library Growth

Recommendation: Investigating Sustainable Funding Models for Libraries

Financial stability is crucial for the long-term success of libraries, and research should examine innovative funding strategies. Economists and financial analysts should study the effectiveness of alternative revenue models such as crowdfunding, corporate sponsorships, and subscription-based services. Analyzing successful public-private partnerships in different countries will provide insights into scalable financial strategies. Sustainable funding will enable libraries to expand their services, adopt modern technologies, and ensure equal access to resources.

Methodology Used: Data analysis revealed financial limitations as a key challenge, particularly in economically disadvantaged regions.

Research Result 6: Underutilization of Libraries in Lifelong Learning

Recommendation: Improving Library Integration with Formal Education Systems

Future studies should explore how libraries can better support formal education through partnerships with schools, universities, and online learning platforms. Education researchers should examine how libraries can enhance student learning outcomes through research assistance, digital resources, and AI-driven tutoring programs. Investigating the impact of online courses and blended learning initiatives on academic performance will provide insights into how libraries can strengthen their role in education. Strengthening library-education collaboration will help bridge learning gaps and support skill development.

Methodology Used: Surveys and focus groups were used to assess the role of libraries in lifelong learning, revealing underperformance in areas such as research services and practical knowledge application.

Conclusion

The above recommendations emphasize the importance of expanding the scope of research to address the gaps and challenges identified in this study. By focusing on these research areas, future studies can help improve library management, enhance

technological integration, strengthen community engagement, and secure sustainable funding, ensuring that libraries remain effective learning spaces for future generations.

5.4 Summary of Chapter Five

Chapter Five provides a comprehensive conclusion, discussion, and recommendations derived from the research findings on innovative library management within the framework of lifelong learning. It evaluates the current and desired conditions through an analysis of internal and external environmental factors, complemented by a detailed SWOT analysis. The chapter identifies strengths, such as the integration of advanced technologies and community-centered services, alongside weaknesses, including challenges in human resource management and research services. Opportunities are recognized in government initiatives supporting lifelong learning and technological advancements, while threats include the digital divide and a lack of standardized regulations.

Building on these findings, the research formulates six main strategies, 24 sub-strategies, and 72 specific procedures designed to enhance library management and align operations with lifelong learning principles. Key recommendations emphasize the need to improve human resource development, adopt advanced technologies, foster community engagement, establish standardized policies, and implement sustainable funding models. The chapter further outlines actionable steps for executing these strategies and highlights areas for future research.

In conclusion, this study underscores the multifaceted nature of innovative library management and its potential to serve as a cornerstone of lifelong learning. By addressing gaps in management practices, research services, and policy frameworks while leveraging opportunities in technology and community collaboration, libraries can evolve into vital hubs for continuous education and cultural development. The proposed strategies provide a roadmap for enhancing operational efficiency, societal impact, and alignment with lifelong learning goals. Achieving this vision requires a holistic approach that integrates effective management, advanced technologies, and robust policies. By adopting these recommendations, libraries can solidify their role as transformative institutions in building a knowledge-driven society.

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**Appendix A: Research Tools - The Index of Item-Objective Congruence (IOC)
Form for Individual Research**

Research Tools - The Index of Item-Objective Congruence (IOC) Form for Individual Research

1. Basic information of experts

1.1 Name:

1.2 Educational qualifications:

1.3 Job position:

2. The conceptual framework of the research

2.1 The researcher summarized the variables of the innovative library management through studying the following theoretical concepts and related literature:

1). Public Library Law of the People's Republic of China (Order of the President of the People's Republic of China, 2017).

2). The Public Library Assessment Indicators series of standards (WH/T70-2020).

3). Measures for the construction and management of urban study rooms in Wenzhou City (Office of the People's Government of Wenzhou City, 2020).

4). Measures for the construction and management of urban study rooms in Luoyang City's "Heluo Book Garden" (Office of the People's Government of Luoyang City, 2021).

5). A framework for strengthening school library capacity (Hay, L. & Foley, C., 2009).

6). Association of College and Research Libraries (ACRL) 2020 Strategic Plan, 2009.

7). Library of Congress Strategic Plan 2016 – 2020 (Library of Congress, 2016).

8). Information and Literature -Quality Assessment of the National Library (ISO 21248:2019).

9). Industrial Management and General Management (Henri Fayol, 1916)

2.2 By studying a large number of relevant mainstream theories and literature, on the suggestion of the defense committee, the researcher selected the characteristics of lifelong learning presented by the UNESCO (1996) and the European Union (2010).

The conceptual framework of this research is shown in the following figure:

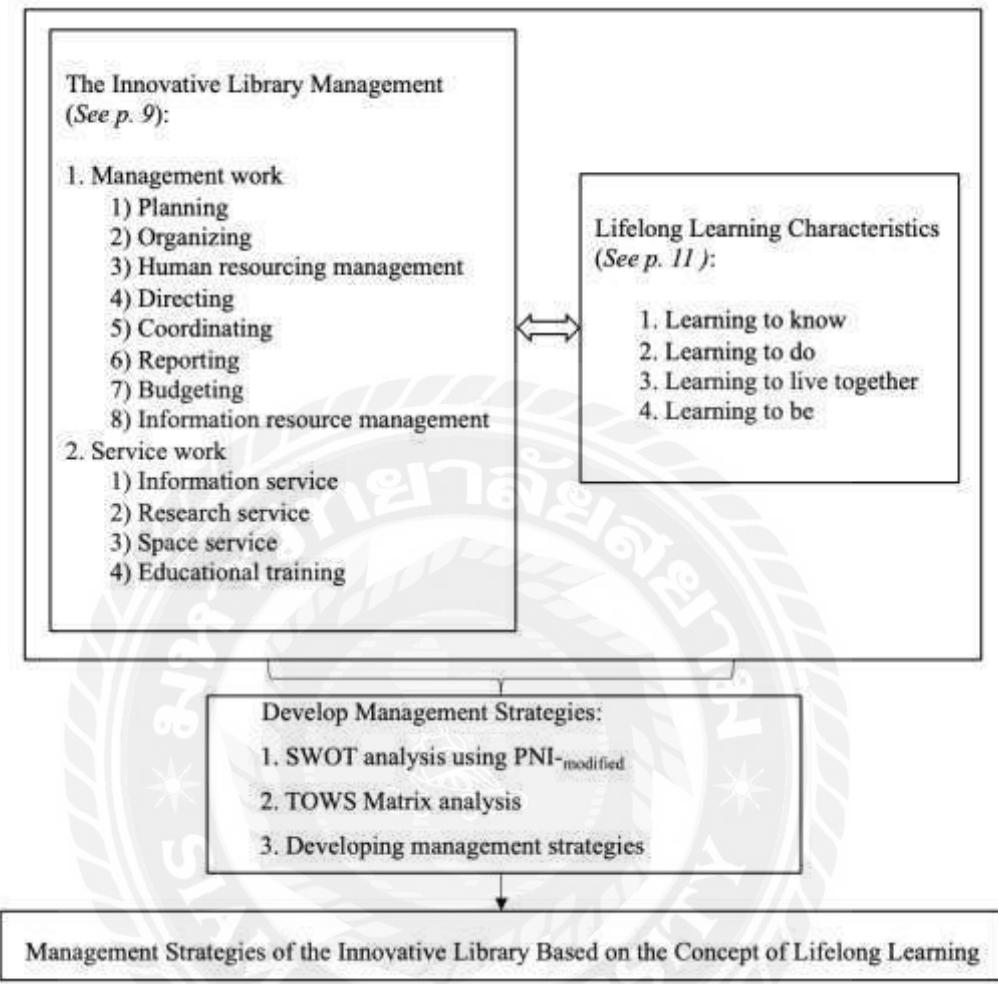


Figure 1: Conceptual framework

3. Suitability of the questions

Based on the content of the conceptual framework and the definition of each variable, the researchers designed the following questions. Each of the questions was designed to target the four characteristics of the dependent variables (Lifelong Learning), which are learning to know, learning to do, learning to live together, and learning to be.

Calculate content validity based on the expert's consideration results, taking into account the consistency index between the question and the goal (Item Objective Congruence: IOC) and the criteria for judging validity.

The scoring criteria are as follows:

+1 for agree with the question.

0 indicates uncertain about whether to use the question.

-1 indicates disagree with the use of the question.

Experts are welcome to provide your valuable opinions. Please leave your valuable suggestion in the table.

Table 1. Comments on questions in the questionnaire

Questions List	Evaluation			Suggestion
	+1	0	-1	
Management work (At what level according to fostering of lifelong learning?)				
1. Planning: Unlike traditional libraries that follow a rigid bureaucratic framework, innovative libraries require agile planning that incorporates emerging digital trends, user needs, and flexible resource allocation.				
1) Planning encompasses the strategic development of libraries to enhance users' literacy and numeracy skills, foster critical thinking and innovation, and strengthen cognitive competencies. This is achieved through adaptive and flexible library initiatives that respond to evolving educational needs.				
2) Planning also accounts for the enhancement of library users' practical skills and competencies, fostering their ability to continuously adapt to evolving work environments and effectively transform and apply knowledge. This approach simultaneously optimizes the library's operational efficiency and adaptability.				
3) Planning also cultivates library users' respect, empathy, and appreciation for others, as well as their historical and cultural heritage, through initiatives such as volunteer programs and engagement in social groups. These activities reflect the innovative library's commitment to fostering social responsibility and cultural awareness.				
4) Planning also emphasizes the promotion of regular engagement in sports, arts, and cultural activities among library users, fostering the development of personal imagination, creativity, aesthetic awareness, physical well-being, and communication skills through diverse and dynamic formats.				
2. Organizing: Traditional libraries follow hierarchical management, whereas innovative libraries adopt a decentralized networked model, allowing multiple branch locations to function independently while maintaining standardized operations.				
1) Organizing allows staff to collaborate on the importance of nurturing library users' literacy and numeracy skills, especially critical thinking and innovation skills. In addition, all personnel work together to promote the quality of library users.				
2) Organizing supports each library division to enrich library users' application skills and abilities, including constantly adapting to changes in the work environment and transforming and applying knowledge.				
3) Organizing encourages staff from every department to help library users learn and practice respectful, considerate, and understanding of others inherent in their history and traditions.				
4) Organizing allows personnel from all departments to work together to create an atmosphere for library users to participate in various activities, whether they require knowledge and ability or physical skills. This will help make library users more practitioners than just theorists.				
3. Human Resource Management: Instead of relying on large in-person staff, innovative libraries use automated systems and digital management tools, requiring specialized training in AI-assisted library				

Questions List	Evaluation			Suggestion
	+1	0	-1	
services.				
1) Human resource management is linked to supporting library users' literacy and numeracy skills, critical and innovative thinking skills, and cognitive qualities.				
2) Human resource management considers enhancing library users' application skills and abilities, ability to adapt to changes in the work environment, and ability to change and apply knowledge.				
3) Human resource management emphasizes cultivating respect, and sympathy between library users and society. This includes participating in the inheriting and continuation of history and traditions.				
4) Human resource management emphasizes the importance of regularly engaging library users in sports, arts, and cultural activities. It focuses on developing personal imagination, creativity, aesthetic perception, physical fitness.				
4. Directing: Leadership in innovative libraries focuses on digital transformation and service efficiency, ensuring a seamless integration of smart technology into library operations.				
1) Directing helps librarians help library users' literacy and numeracy skills, critical thinking and innovation, and cognitive qualities.				
2) Directing helps librarians support library users in developing application skills and abilities, stimulates adaptability to changes in the work environment, and the ability to change and apply knowledge through actual library staff.				
3) Directing fosters library users' respect, empathy, and understanding of one another, as well as an appreciation for their history and traditions through the conduct of staff.				
4) Directing helps librarians to encourage library users to regularly participate in sports, arts, and cultural activities and focuses on the development of personal imagination, creativity, aesthetic perception, physical fitness, and communication skills through various formats.				
5. Coordinating: These libraries establish partnerships beyond government institutions, collaborating with tech companies, universities, and digital education providers.				
1) Coordinating supports networking with all agencies to help library users improve their literacy and numeracy skills, critical thinking and innovation, and cognitive qualities, such as perseverance, curiosity, and collaboration.				
2) Coordinating supports cultivating library users' application skills and abilities, constantly adapting to changes in the work environment, and transforming and applying knowledge.				
3) Coordination involves promoting library users' respect, empathy, and understanding of one another. It also helps library users develop an appreciation for their history and traditions, which helps build social unity.				
4) Coordinating also strengthens the library network to actively promote user engagement in sports, arts, and cultural activities, fostering the development of personal imagination, creativity, aesthetic awareness, physical well-being, and				

Questions List	Evaluation			Suggestion
	+1	0	-1	
communication skills through diverse and interactive initiatives.				
6. Reporting: Unlike traditional methods of manual tracking, innovative libraries utilize real-time data analytics and AI-generated reports to evaluate user engagement and optimize resources.				
1) Reporting provides information about library users. It helps develop literacy and numeracy skills, critical thinking and innovation abilities, and the perceived quality of library users.				
2) Reporting also collects user demand information in all aspects to improve library users' application skills and abilities, such as their ability to adapt to changes in their work environment and to change and apply knowledge in their lives.				
3) Reporting helps library users develop respect, care, understanding of others, and appreciation of history and tradition. This covers the various aspects of building an acceptable social environment				
4) Reporting also accumulates information to increase library users' knowledge and readiness to help the community. Through various activities, library users can express themselves to society as complete people physically and mentally.				
7. Budgeting: Innovative libraries require technology-focused financial planning, including allocating funds to smart infrastructure, AI learning tools, and automated system maintenance.				
1) Budgeting takes into account building library users with literacy and numeracy skills, desirable characteristics in this new era, such as being critical thinkers and innovators and living together in goodwill and generosity toward one another.				
2) Budgeting considers building library users' application skills and abilities to be able to practically adapt to changes in various environments and improve their ability to live happily amidst rapid changes in their surroundings.				
3) Budgeting helps library users understand the importance of creating unity, compassion and respect for each other's dignity and rights, and should not be divided despite different histories and traditions.				
4) Budgeting helps to encourage library users to be athletic, artistic, and cultural enthusiasts. Library users become people who can express their personal imagination, creativity, aesthetic perception, and physical and mental abilities to others.				
8. Information Resource Management: Traditional libraries rely on manual cataloging; however, innovative libraries use AI-powered indexing, cloud-based databases, and interactive e-learning platforms for efficient resource management.				
1) Information resource management helps library users develop literacy, numeracy, and other desirable skills in the era of technology and change.				
2) Information resource management helps library users adapt to changes in their work and daily living environment, even if unexpected changes or events occur.				
3) Information resource management fosters library users' understanding and practice of respect, empathy, and understanding toward others nationally and internationally,				

Questions List	Evaluation			Suggestion
	+1	0	-1	
regardless of different backgrounds or even conflicting histories and traditions.				
4) Information resource management helps library users to gain knowledge and understanding, express themselves with good sportsmanship, art, and culture, and become people others respect and accept in the era of leading innovation.				
Service work (At what level according to fostering of lifelong learning?)				
9. Information Service: While traditional libraries provide book lending and research assistance, innovative libraries enhance accessibility through 24/7 digital libraries, AI-powered reading recommendations, and remote access to online resources.				
1) Information services support library users' literacy and numeracy skills, critical thinking and innovation, and cognitive qualities.				
2) Information services promote library users' application skills and abilities, including constantly adapting to changes in the work environment and transforming and applying knowledge.				
3) Information services encourage library users to develop understanding and empathy for others' individuality and to accept their history and traditions. It also inspires library users to live well with others.				
4) Information services provide regular and digital services to help encourage library users to become thinkers, developers, and practitioners in various fields. It also encourages library users to use their imagination, creativity, aesthetic perception, and physical performance.				
10. Research Service: Instead of just offering physical reference sections, innovative libraries support data-driven research tools, virtual research assistance, and AI-based knowledge hubs.				
1) Research services support library users in developing essential skills such as reading, writing, and numeracy. These skills can be used in next-level research, which requires critical thinking to create innovations and new knowledge.				
2) Research services cultivate library users into proficient researchers by equipping them with essential research skills. These services facilitate the generation of new knowledge, enhance professional practices, and contribute to problem-solving across various domains.				
3) Research services help library users develop an understanding and respect for the different opinions of others, including appropriate expression both personally and collectively.				
4) Research services help library users become analysts and researchers in various fields of study. They also cultivate library users' ability to reflect their academic skills through their knowledge, personal imagination, and creativity.				
11. Space Service: Unlike traditional reading rooms, innovative libraries provide flexible, technology-enhanced environments that encourage interactive, collaborative learning, and immersive digital experiences through AR/VR technologies.				
1) Space services provide library users with space and facilities to learn and explore knowledge and information relevant to their studies.				

Questions List	Evaluation			Suggestion
	+1	0	-1	
2) Space services provide library users with space and facilities to explore and apply their research skills. They also provide a private space for professional research.				
3) Space services provide library users with space and facilities that foster an environment of respect, caring, and understanding. They also allow researchers to form groups for study or discussion.				
4) Space services provide library users with space and facilities that motivate them to express their research skills and reflect their identity as researchers.				
12. Educational Training: Traditional libraries focus on passive reading, while innovative libraries integrate interactive workshops, online webinars, coding boot camps, and AI-driven learning simulations.				
1) Educational training introduces and disseminates various library services through events and training to help cultivate library users' literacy and numeracy skills, critical thinking and innovation, and cognitive qualities.				
2) Educational training brings in various library services by cultivating library users' application skills and abilities, the ability to constantly adapt to changes in the work environment, and the ability to transform and apply knowledge.				
3) Educational training inspires library users to understand, care for and respect humans and the environment, and help library users learning to live together.				
4) Educational training promotes library users' participation in society. It helps the personal development of practitioners in various fields and motivates library users to pursue their ideal careers.				
Politics (Government policies, and regulations are crucial in shaping innovative libraries. Political support determines policies on digital transformation, knowledge accessibility, and lifelong learning initiatives. Regulations can promote technology adoption and collaboration with educational institutions or impose restrictions limiting expansion and funding opportunities)				
13. To what level do you think the political situation is conducive to the "Management work" of innovative library management in terms of the following aspects based on the concept of lifelong learning?				
1) The political situation affects innovative library management work regarding "learning to know" according to lifelong learning.				
2) The political situation affects innovative library management work regarding "learning to do" according to lifelong learning.				
3) The political situation affects innovative library management work regarding "learning to live together" according to lifelong learning.				
4) The political situation affects innovative library management work regarding "learning to be" according to lifelong learning.				
14. To what level do you think the political situation is conducive to the " Service work" of innovative library management in terms of the following aspects based on the concept of lifelong learning?				
1) The political situation affects innovative library service work regarding "learning to know" according to lifelong learning.				

Questions List	Evaluation			Suggestion
	+1	0	-1	
2) The political situation affects innovative library service work regarding “learning to do” according to lifelong learning.				
3) The political situation affects innovative library service work regarding learning to “live to live together” according to lifelong learning.				
4) The political situation affects innovative library service work regarding “learning to be” according to lifelong learning.				
Economy (Financial stability impacts library funding, resource allocation, and technology investments. A strong economy enables libraries to expand AI-driven services, digital collections, and research support. At the same time, economic downturns may limit budgets, requiring alternative funding models like public-private partnerships, grants, or community-driven contributions)				
15. To what level do you think the economy is conducive to the "Management work" of innovative library management in terms of the following aspects based on the concept of lifelong learning?				
1) The economic situation affects innovative library management work regarding “learning to know” according to lifelong learning.				
2) The economic situation affects innovative library management work regarding “learning to do” according to lifelong learning.				
3) The economic situation affects innovative library management work regarding “learning to live together” according to lifelong learning.				
4) The economic situation affects innovative library management work regarding “learning to be” according to lifelong learning.				
16. To what level do you think the economy is conducive to the "Service work" of innovative library management in terms of the following aspects based on the concept of lifelong learning?				
1) The economic situation affects innovative library service work regarding “learning to know” according to lifelong learning.				
2) The economic situation affects innovative library service work regarding “learning to do” according to lifelong learning.				
3) The economic situation affects innovative library service work regarding “learning to live together” according to lifelong learning.				
4) The economic situation affects innovative library service work regarding “learning to be” according to lifelong learning.				
Society (Libraries serve diverse communities, and societal trends influence service demand. With increasing reliance on remote learning and digital literacy, libraries must adapt by offering inclusive, flexible learning spaces. Understanding different user needs, from students to seniors, helps libraries promote community engagement, collaboration, and equitable access to information)				
17. To what level do you think the social situation is conducive to the "Management work" of innovative library management in terms of the following aspects based on the concept of lifelong learning?				
1) The social situation affects innovative library management work regarding “learning to know” according to lifelong learning.				
2) The social situation affects innovative library management work regarding “learning to do” according to lifelong learning.				

Questions List	Evaluation			Suggestion
	+1	0	-1	
3) The social situation affects innovative library management work regarding “learning to live together” according to lifelong learning.				
4) The social situation affects innovative library management work regarding “learning to be” according to lifelong learning.				
18. To what level do you think the social situation is conducive to the " Service work" of innovative library management b in terms of the following aspects based on the concept of lifelong learning?				
1) The social situation affects innovative library service work regarding “learning to know” according to lifelong learning.				
2) The social situation affects innovative library service work regarding “learning to do” according to lifelong learning.				
3) The social situation affects innovative library service work regarding “learning to live together” according to lifelong learning.				
4) The social situation affects innovative library service work regarding “learning to be” according to lifelong learning.				
Technology (Advancements in AI, automation, and digital tools redefine library services. AI-powered cataloging, cloud-based research, and virtual reality learning spaces improve accessibility and efficiency. Emerging technologies like block chain for data security and smart kiosks for self-service lending help libraries stay innovative and relevant in the digital age)				
19. To what level do you think the technological situation is conducive to the "Management work" of innovative library management in terms of the following aspects based on the concept of lifelong learning?				
1) The technological situation affects innovative library management work regarding “learning to know” according to lifelong learning.				
2) The technological situation affects innovative library management work regarding “learning to do” according to lifelong learning.				
3) The technological situation affects innovative library management work regarding “learning to live together” according to lifelong learning.				
4) The technological situation affects innovative library management work regarding “learning to be” according to lifelong learning.				
20. To what level do you think the technological situation is conducive to the "Service work" of innovative library management in terms of the following aspects based on the concept of lifelong learning?				
1) The technological situation affects innovative library service work regarding “learning to know” according to lifelong learning.				
2) The technological situation affects innovative library service work regarding “learning to do” according to lifelong learning.				
3) The technological situation affects innovative library service work regarding “learning to live together” according to lifelong learning.				
4) The technological situation affects innovative library service work regarding “learning to be” according to lifelong learning.				

Table 2 Summary of expert opinions of the questions

Questions List	Score	Suggestion
Management work (At what level according to fostering of lifelong learning?)		
1. Planning: Unlike traditional libraries that follow a rigid bureaucratic framework, innovative libraries require agile planning that incorporates emerging digital trends, user needs, and flexible resource allocation.		
1) Planning encompasses the strategic development of libraries to enhance users' literacy and numeracy skills, foster critical thinking and innovation, and strengthen cognitive competencies. This is achieved through adaptive and flexible library initiatives that respond to evolving educational needs.	0.8	
2) Planning also accounts for the enhancement of library users' practical skills and competencies, fostering their ability to continuously adapt to evolving work environments and effectively transform and apply knowledge. This approach simultaneously optimizes the library's operational efficiency and adaptability.	0.8	
3) Planning also cultivates library users' respect, empathy, and appreciation for others, as well as their historical and cultural heritage, through initiatives such as volunteer programs and engagement in social groups. These activities reflect the innovative library's commitment to fostering social responsibility and cultural awareness.	0.8	
4) Planning also emphasizes the promotion of regular engagement in sports, arts, and cultural activities among library users, fostering the development of personal imagination, creativity, aesthetic awareness, physical well-being, and communication skills through diverse and dynamic formats.	0.8	
2. Organizing: Traditional libraries follow hierarchical management, whereas innovative libraries adopt a decentralized networked model, allowing multiple branch locations to function independently while maintaining standardized operations.		
1) Organizing allows staff to collaborate on the importance of nurturing library users' literacy and numeracy skills, especially critical thinking and innovation skills. In addition, all personnel work together to promote the quality of library users.	1.0	
2) Organizing supports each library division to enrich library users' application skills and abilities, including constantly adapting to changes in the work environment and transforming and applying knowledge.	1.0	
3) Organizing encourages staff from every department to help library users learn and practice respectful, considerate, and understanding of others inherent in their history and traditions.	1.0	
4) Organizing allows personnel from all departments to work together to create an atmosphere for library users to participate in various activities, whether they require knowledge and ability or physical skills. This will help make library users more practitioners than just theorists.	1.0	
3. Human Resource Management: Instead of relying on large in-person staff, innovative libraries use automated systems and digital management tools, requiring specialized training in AI-assisted library services.		
1) Human resource management is linked to supporting library users' literacy and numeracy skills, critical and innovative thinking skills, and cognitive qualities.	1.0	
2) Human resource management considers enhancing library users' application skills and abilities, ability to adapt to changes in the work environment, and ability to change and apply knowledge.	1.0	
3) Human resource management emphasizes cultivating respect, and sympathy between library users and society. This includes participating in the inheriting and continuation of history and traditions.	0.8	

Questions List	Score	Suggestion
4) Human resource management emphasizes the importance of regularly engaging library users in sports, arts, and cultural activities. It focuses on developing personal imagination, creativity, aesthetic perception, physical fitness.	0.8	
4. Directing: Leadership in innovative libraries focuses on digital transformation and service efficiency, ensuring a seamless integration of smart technology into library operations.		
1) Directing helps librarians help library users' literacy and numeracy skills, critical thinking and innovation, and cognitive qualities.	1.0	
2) Directing helps librarians support library users in developing application skills and abilities, stimulates adaptability to changes in the work environment, and the ability to change and apply knowledge through actual library staff.	1.0	
3) Directing fosters library users' respect, empathy, and understanding of one another, as well as an appreciation for their history and traditions through the conduct of staff.	1.0	
4) Directing helps librarians to encourage library users to regularly participate in sports, arts, and cultural activities and focuses on the development of personal imagination, creativity, aesthetic perception, physical fitness, and communication skills through various formats.	1.0	
5. Coordinating: These libraries establish partnerships beyond government institutions, collaborating with tech companies, universities, and digital education providers.		
1) Coordinating supports networking with all agencies to help library users improve their literacy and numeracy skills, critical thinking and innovation, and cognitive qualities, such as perseverance, curiosity, and collaboration.	0.8	
2) Coordinating supports cultivating library users' application skills and abilities, constantly adapting to changes in the work environment, and transforming and applying knowledge.	0.8	
3) Coordination involves promoting library users' respect, empathy, and understanding of one another. It also helps library users develop an appreciation for their history and traditions, which helps build social unity.	0.8	
4) Coordinating also strengthens the library network to actively promote user engagement in sports, arts, and cultural activities, fostering the development of personal imagination, creativity, aesthetic awareness, physical well-being, and communication skills through diverse and interactive initiatives.	0.8	
6. Reporting: Unlike traditional methods of manual tracking, innovative libraries utilize real-time data analytics and AI-generated reports to evaluate user engagement and optimize resources.		
1) Reporting provides information about library users. It helps develop literacy and numeracy skills, critical thinking and innovation abilities, and the perceived quality of library users.	1.0	
2) Reporting also collects user demand information in all aspects to improve library users' application skills and abilities, such as their ability to adapt to changes in their work environment and to change and apply knowledge in their lives.	1.0	
3) Reporting helps library users develop respect, care, understanding of others, and appreciation of history and tradition. This covers the various aspects of building an acceptable social environment	1.0	
4) Reporting also accumulates information to increase library users' knowledge and readiness to help the community. Through various activities, library users can express themselves to society as complete people physically and mentally.	1.0	
7. Budgeting: Innovative libraries require technology-focused financial planning, including allocating funds to smart infrastructure, AI learning tools, and automated system maintenance.		
1) Budgeting takes into account building library users with literacy and numeracy skills, desirable characteristics in this new era, such as being	0.8	

Questions List	Score	Suggestion
critical thinkers and innovators and living together in goodwill and generosity toward one another.		
2) Budgeting considers building library users' skills and abilities to be able to practically adapt to changes in various environments and improve their ability to live happily amidst rapid changes in their surroundings.	0.8	
3) Budgeting helps library users understand the importance of creating unity, compassion and respect for each other's dignity and rights, and should not be divided despite different histories and traditions.	0.8	
4) Budgeting helps to encourage library users to be athletic, artistic, and cultural enthusiasts. Library users become people who can express their personal imagination, creativity, aesthetic perception, and physical and mental abilities to others.	0.8	
8. Information Resource Management: Traditional libraries rely on manual cataloging; however, innovative libraries use AI-powered indexing, cloud-based databases, and interactive e-learning platforms for efficient resource management.		
1) Information resource management helps library users develop literacy, numeracy, and other desirable skills in the era of technology and change.	0.8	
2) Information resource management helps library users adapt to changes in their work and daily living environment, even if unexpected changes or events occur.	0.8	
3) Information resource management fosters library users' understanding and practice of respect, empathy, and understanding toward others nationally and internationally, regardless of different backgrounds or even conflicting histories and traditions.	0.8	
4) Information resource management helps library users to gain knowledge and understanding, express themselves with good sportsmanship, art, and culture, and become people others respect and accept in the era of leading innovation.	0.8	
Service work (At what level according to fostering of lifelong learning?)		
9. Information Service: While traditional libraries provide book lending and research assistance, innovative libraries enhance accessibility through 24/7 digital libraries, AI-powered reading recommendations, and remote access to online resources.		
1) Information services support library users' literacy and numeracy skills, critical thinking and innovation, and cognitive qualities.	0.8	
2) Information services promote library users' application skills and abilities, including constantly adapting to changes in the work environment and transforming and applying knowledge.	0.8	
3) Information services encourage library users to develop understanding and empathy for others' individuality and to accept their history and traditions. It also inspires library users to live well with others.	0.8	
4) Information services provide regular and digital services to help encourage library users to become thinkers, developers, and practitioners in various fields. It also encourages library users to use their imagination, creativity, aesthetic perception, and physical performance.	0.8	
10. Research Service: Instead of just offering physical reference sections, innovative libraries support data-driven research tools, virtual research assistance, and AI-based knowledge hubs.		
1) Research services support library users in developing essential skills such as reading, writing, and numeracy. These skills can be used in next-level research, which requires critical thinking to create innovations and new knowledge.	1.0	
2) Research services cultivate library users into proficient researchers by equipping them with essential research skills. These services facilitate the	1.0	

Questions List	Score	Suggestion
generation of new knowledge, enhance professional practices, and contribute to problem-solving across various domains.		
3) Research services help library users develop an understanding and respect for the different opinions of others, including appropriate expression both personally and collectively.	1.0	
4) Research services help library users become analysts and researchers in various fields of study. They also cultivate library users' ability to reflect their academic skills through their knowledge, personal imagination, and creativity.	1.0	
11. Space Service: Unlike traditional reading rooms, innovative libraries provide flexible, technology-enhanced environments that encourage interactive, collaborative learning, and immersive digital experiences through AR/VR technologies.		
1) Space services provide library users with space and facilities to learn and explore knowledge and information relevant to their studies.	1.0	
2) Space services provide library users with space and facilities to explore and apply their research skills. They also provide a private space for professional research.	1.0	
3) Space services provide library users with space and facilities that foster an environment of respect, caring, and understanding. They also allow researchers to form groups for study or discussion.	1.0	
4) Space services provide library users with space and facilities that motivate them to express their research skills and reflect their identity as researchers.	1.0	
12. Educational Training: Traditional libraries focus on passive reading, while innovative libraries integrate interactive workshops, online webinars, coding boot camps, and AI-driven learning simulations.		
1) Educational training introduces and disseminates various library services through events and training to help cultivate library users' literacy and numeracy skills, critical thinking and innovation, and cognitive qualities.	1.0	
2) Educational training brings in various library services by cultivating library users' application skills and abilities, the ability to constantly adapt to changes in the work environment, and the ability to transform and apply knowledge.	1.0	
3) Educational training inspires library users to understand, care for and respect humans and the environment, and help library users learning to live together.	1.0	
4) Educational training promotes library users' participation in society. It helps the personal development of practitioners in various fields and motivates library users to pursue their ideal careers.	1.0	
Politics (Government policies, and regulations are crucial in shaping innovative libraries. Political support determines policies on digital transformation, knowledge accessibility, and lifelong learning initiatives. Regulations can promote technology adoption and collaboration with educational institutions or impose restrictions limiting expansion and funding opportunities)		
13. To what level do you think the political situation is conducive to the "Management work" of innovative library management in terms of the following aspects based on the concept of lifelong learning?		
1) The political situation affects innovative library management work regarding "learning to know" according to lifelong learning.	0.8	
2) The political situation affects innovative library management work regarding "learning to do" according to lifelong learning.	0.8	
3) The political situation affects innovative library management work regarding "learning to live together" according to lifelong learning.	0.8	
4) The political situation affects innovative library management work regarding "learning to be" according to lifelong learning.	0.8	
14. To what level do you think the political situation is conducive to the "Service work" of innovative library management in terms of the following aspects based on the concept of lifelong learning?		

Questions List	Score	Suggestion
1) The political situation affects innovative library service work regarding "learning to know" according to lifelong learning.	0.8	
2) The political situation affects innovative library service work regarding "learning to do" according to lifelong learning.	0.8	
3) The political situation affects innovative library service work regarding learning to "live to live together" according to lifelong learning.	0.8	
4) The political situation affects innovative library service work regarding "learning to be" according to lifelong learning.	0.8	
Economy (Financial stability impacts library funding, resource allocation, and technology investments. A strong economy enables libraries to expand AI-driven services, digital collections, and research support. At the same time, economic downturns may limit budgets, requiring alternative funding models like public-private partnerships, grants, or community-driven contributions)		
15. To what level do you think the economy is conducive to the "Management work" of innovative library management in terms of the following aspects based on the concept of lifelong learning?		
1) The economic situation affects innovative library management work regarding "learning to know" according to lifelong learning.	0.8	
2) The economic situation affects innovative library management work regarding "learning to do" according to lifelong learning.	0.8	
3) The economic situation affects innovative library management work regarding "learning to live together" according to lifelong learning.	0.8	
4) The economic situation affects innovative library management work regarding "learning to be" according to lifelong learning.	0.8	
16. To what level do you think the economy is conducive to the "Service work" of innovative library management in terms of the following aspects based on the concept of lifelong learning?		
1) The economic situation affects innovative library service work regarding "learning to know" according to lifelong learning.	0.8	
2) The economic situation affects innovative library service work regarding "learning to do" according to lifelong learning.	0.8	
3) The economic situation affects innovative library service work regarding "learning to live together" according to lifelong learning.	0.8	
4) The economic situation affects innovative library service work regarding "learning to be" according to lifelong learning.	0.8	
Society (Libraries serve diverse communities, and societal trends influence service demand. With increasing reliance on remote learning and digital literacy, libraries must adapt by offering inclusive, flexible learning spaces. Understanding different user needs, from students to seniors, helps libraries promote community engagement, collaboration, and equitable access to information)		
17. To what level do you think the social situation is conducive to the "Management work" of innovative library management in terms of the following aspects based on the concept of lifelong learning?		
1) The social situation affects innovative library management work regarding "learning to know" according to lifelong learning.	0.8	
2) The social situation affects innovative library management work regarding "learning to do" according to lifelong learning.	0.8	
3) The social situation affects innovative library management work regarding "learning to live together" according to lifelong learning.	0.8	
4) The social situation affects innovative library management work regarding "learning to be" according to lifelong learning.	0.8	
18. To what level do you think the social situation is conducive to the "Service work" of innovative library management in terms of the following aspects based on the concept of lifelong learning?		
1) The social situation affects innovative library service work regarding "learning to know" according to lifelong learning.	0.8	
2) The social situation affects innovative library service work regarding "learning to do" according to lifelong learning.	0.8	

Questions List	Score	Suggestion
3) The social situation affects innovative library service work regarding "learning to live together" according to lifelong learning.	0.8	
4) The social situation affects innovative library service work regarding "learning to be" according to lifelong learning.	0.8	
Technology (Advancements in AI, automation, and digital tools redefine library services. AI-powered cataloging, cloud-based research, and virtual reality learning spaces improve accessibility and efficiency. Emerging technologies like block chain for data security and smart kiosks for self-service lending help libraries stay innovative and relevant in the digital age)		
19. To what level do you think the technological situation is conducive to the "Management work" of innovative library management in terms of the following aspects based on the concept of lifelong learning?		
1) The technological situation affects innovative library management work regarding "learning to know" according to lifelong learning.	0.8	
2) The technological situation affects innovative library management work regarding "learning to do" according to lifelong learning.	0.8	
3) The technological situation affects innovative library management work regarding "learning to live together" according to lifelong learning.	0.8	
4) The technological situation affects innovative library management work regarding "learning to be" according to lifelong learning.	0.8	
20. To what level do you think the technological situation is conducive to the " Service work" of innovative library management in terms of the following aspects based on the concept of lifelong learning?		
1) The technological situation affects innovative library service work regarding "learning to know" according to lifelong learning.	0.8	
2) The technological situation affects innovative library service work regarding "learning to do" according to lifelong learning.	0.8	
3) The technological situation affects innovative library service work regarding "learning to live together" according to lifelong learning.	0.8	
4) The technological situation affects innovative library service work regarding "learning to be" according to lifelong learning.	0.8	

Appendix B: Research Tools- The Questionnaire

Research Tools- The Questionnaire

This questionnaire is designed to study the innovative library management based on the concept of lifelong learning. The purpose of this questionnaire is to study the current situation and desirable situation of innovative library management both internally and externally. Finally, by analyzing the strengths, weaknesses, opportunities, and threats, management strategies of the innovative library based on the concept of lifelong learning are formulated.

This questionnaire is divided into 4 parts:

1. Respondent's basic information.
2. Current and desired situations of the innovative library management based on the concept of lifelong learning from the internal environment.
3. Current and desired situations of the innovative library management based on the concept of lifelong learning from the external environment (PEST).
4. Additional comments or suggestions for innovative library management strategies based on the concept of lifelong learning.

The information obtained from this questionnaire will be kept strictly confidential and will not have any impact on you. Please fill it out based on your actual situation. Thank you for your support of this research and for your contribution to the development of innovative libraries and lifelong learning.

Terminology explanation:

Innovative Library Management means ensuring the efficient operation of self-service, technology-driven libraries that promote lifelong learning. It consists of management work, including planning, organizing, budgeting, and resource management, as well as service work, which covers information access, research support, space utilization, and educational programs. Unlike traditional libraries, innovative libraries leverage automation, AI, and decentralized models to provide flexible, user-friendly, and technology-enhanced learning environments.

Management Work

This refers to the strategic operation of the library, ensuring efficiency, accessibility, and adaptability. Key aspects include:

Planning: Unlike traditional libraries that follow a rigid bureaucratic framework, innovative libraries require agile planning that incorporates emerging digital trends, user needs, and flexible resource allocation.

Organizing: Traditional libraries follow hierarchical management, whereas innovative libraries adopt a decentralized networked model, allowing multiple branch locations to function independently while maintaining standardized operations.

Human Resource Management: Instead of relying on large in-person staff, innovative libraries use automated systems and digital management tools, requiring specialized training in AI-assisted library services.

Directing: Leadership in innovative libraries focuses on digital transformation and service efficiency, ensuring a seamless integration of smart technology into library operations.

Coordinating: These libraries establish partnerships beyond government institutions, collaborating with tech companies, universities, and digital education providers.

Reporting: Unlike traditional methods of manual tracking, innovative libraries utilize real-time data analytics and AI-generated reports to evaluate user engagement and optimize resources.

Budgeting: Innovative libraries require technology-focused financial planning, including allocating funds to smart infrastructure, AI learning tools, and automated system maintenance.

Information Resource Management: Traditional libraries rely on manual cataloging; however, innovative libraries use AI-powered indexing, cloud-based databases, and interactive e-learning platforms for efficient resource management.

Service Work

The service operation of innovative libraries goes beyond book lending and provides modernized, digital-first, and community-driven learning experiences. Key aspects include:

Information Service: While traditional libraries provide book lending and research assistance, innovative libraries enhance accessibility through 24/7 digital libraries, AI-powered reading recommendations, and remote access to online resources.

Research Service: Instead of just offering physical reference sections, innovative libraries support data-driven research tools, virtual research assistance, and AI-based knowledge hubs.

Space Service: Unlike traditional reading rooms, innovative libraries provide flexible, technology-enhanced environments that encourage interactive, collaborative learning, and immersive digital experiences through AR/VR technologies.

Educational Training: Traditional libraries focus on passive reading, while innovative libraries integrate interactive workshops, online webinars, coding boot camps, and AI-driven learning simulations.

Lifelong Learning refers to the continuous, voluntary and self-motivated pursuit of knowledge by people for personal or professional reasons throughout their lives. The characteristics of lifelong learning mainly include the following four aspects:

Learning to Know requires lifelong learners to develop literacy and numeracy skills, along with a critical and innovative mindset. Beyond cognitive abilities, it also involves emotional and social qualities such as perseverance, curiosity, and collaboration, which help individuals adapt to the demands of the modern knowledge economy. Innovative libraries play a key role in supporting this by offering extensive digital and print resources, AI-driven content recommendations, and self-service learning platforms, enabling individuals to efficiently access, explore, and deepen their knowledge in a flexible and independent manner.

Learning to Do is directly linked to an individual's practical skills and abilities in their career, including the capacity to adapt to changing work environments and effectively apply and transform knowledge. This dimension primarily evaluates continuing professional development for adults in the workforce and students' work experience within formal education systems. Innovative libraries support this by providing research assistance, technology-enhanced learning environments, and digital literacy programs, equipping individuals with the skills needed to navigate the evolving job market and technological advancements effectively.

Learning to Live Together involves fostering respect, understanding, and concern for others, as well as an appreciation for their history and traditions. It emphasizes civic participation through activities such as volunteering, charitable

giving, and involvement in community associations, promoting the achievement of common goals and the peaceful resolution of conflicts. Innovative libraries support this by serving as inclusive community spaces, offering civic engagement programs, volunteer opportunities, and knowledge-sharing events that encourage social cohesion, collaboration, and mutual respect among diverse populations.

Learning to Be highlights the importance of individuals engaging in sports, arts, and cultural activities while nurturing imagination, creativity, aesthetic awareness, physical well-being, and communication skills. This development is facilitated through various forms of mass media and interactive experiences. Innovative libraries support this by providing access to artistic, cultural, and personal enrichment programs, fostering intellectual and emotional growth while encouraging self-expression and lifelong personal development.

The **PEST analysis** evaluates four key external factors—Political, Economic, Social, and Technological—that influence the management of innovative libraries. These factors help identify opportunities and threats aligning library management with lifelong learning principles.

Political Factors (P)

Government policies, and regulations are crucial in shaping innovative libraries. Political support determines policies on digital transformation, knowledge accessibility, and lifelong learning initiatives. Regulations can promote technology adoption and collaboration with educational institutions or impose restrictions limiting expansion and funding opportunities.

Economic Factors (E)

Financial stability impacts library funding, resource allocation, and technology investments. A strong economy enables libraries to expand AI-driven services, digital collections, and research support. At the same time, economic downturns may limit budgets, requiring alternative funding models like public-private partnerships, grants, or community-driven contributions.

Social Factors (S)

Libraries serve diverse communities, and societal trends influence service demand. With increasing reliance on remote learning and digital literacy, libraries must adapt by offering inclusive, flexible learning spaces. Understanding different user needs, from students to seniors, helps libraries promote community engagement, collaboration, and equitable access to information.

Technological Factors (T)

Advancements in AI, automation, and digital tools redefine library services. AI-powered cataloging, cloud-based research, and virtual reality learning spaces improve accessibility and efficiency. Emerging technologies like blockchain for data security and smart kiosks for self-service lending help libraries stay innovative and relevant in the digital age.

1. Respondent's basic information

Gender: Men Women

Age: 22-30 31-40 41-50 51-60 Over 61

Position: Manager User

Education: High school diploma and below Associate diploma

Bachelor Master Doctor

2. Current and desirable situations of the innovative library management based on the concept of lifelong learning from the internal environment

Please consider the messages that match your opinion and rate them in the blanks based on what you really think. The current situation is how you think the current management of innovative libraries is, and the desirable situation is what you expect the management of innovative libraries to be. Rating description is as follows:

5 means that the current situation / desirable situation is at the highest level.

4 means that the current situation / desirable situation is at a high level.

3 means that the current situation / desirable situation is at a moderate level.

2 means that the current situation / desirable situation is at a low level.

1 means that the current situation / desirable situation is at the lowest level.

Table 1 Manager Questionnaire for the Internal Environment

The innovative library management based on the concept of lifelong learning (Internal Environment)	Current situation					Desirable situation					
	more		less			more		less			
	5	4	3	2	1		5	4	3	2	1
Management work (At what level according to fostering of lifelong learning?)											
1. Planning: Unlike traditional libraries that follow a rigid bureaucratic framework, innovative libraries require agile planning that incorporates emerging digital trends, user needs, and flexible resource allocation.											
1) Planning also considers the development of the library to help improve cultivating library users' literacy and numeracy skills, critical thinking and innovation, and cognitive qualities through the library's flexible adjustments.	5	4	3	2	1	5	4	3	2	1	
2) Planning also reflects on the development of library users' application skills and abilities, constantly adapting to changes in the work environment and transforming and applying knowledge, improving the library's operational efficiency and flexibility.	5	4	3	2	1	5	4	3	2	1	
3) Planning also fosters library users' respect, care, and understanding of others and their history and traditions through various activities such as volunteering and participating in social groups that show the innovative library's development.	5	4	3	2	1	5	4	3	2	1	
4) Planning also focuses on encouraging library users to regularly participate in sports, art, and cultural activities and on developing personal imagination, creativity, aesthetic awareness, physical fitness, and communication skills through various forms.	5	4	3	2	1	5	4	3	2	1	
2. Organizing: Traditional libraries follow hierarchical management, whereas innovative libraries adopt a decentralized networked model, allowing multiple branch locations to function independently while maintaining standardized operations.											
1) Organizing allows staff to collaborate on the importance of nurturing library users' literacy and numeracy skills, especially critical thinking and innovation skills. In addition, all personnel work together to promote the quality of library users.	5	4	3	2	1	5	4	3	2	1	
2) Organizing supports each library division to enrich library users' application skills and abilities, including	5	4	3	2	1	5	4	3	2	1	

The innovative library management based on the concept of lifelong learning (Internal Environment)	Current situation					Desirable situation				
	more		less			more		less		
	5	4	3	2	1	5	4	3	2	1
constantly adapting to changes in the work environment and transforming and applying knowledge.										
3) Organizing encourages staff from every department to help library users learn and practice respectful, considerate, and understanding of others inherent in their history and traditions.	5	4	3	2	1	5	4	3	2	1
4) Organizing allows personnel from all departments to work together to create an atmosphere for library users to participate in various activities, whether they require knowledge and ability or physical skills. This will help make library users more practitioners than just theorists.	5	4	3	2	1	5	4	3	2	1
3. Human Resource Management: Instead of relying on large in-person staff, innovative libraries use automated systems and digital management tools, requiring specialized training in AI-assisted library services.										
1) Human resource management is linked to supporting library users' literacy and numeracy skills, critical and innovative thinking skills, and cognitive qualities.	5	4	3	2	1	5	4	3	2	1
2) Human resource management considers enhancing library users' application skills and abilities, ability to adapt to changes in the work environment, and ability to change and apply knowledge.	5	4	3	2	1	5	4	3	2	1
3) Human resource management emphasizes cultivating respect, sympathy, and understanding between library users and society. This includes participating in the inheriting and continuation of history and traditions.	5	4	3	2	1	5	4	3	2	1
4) Human resource management emphasizes the importance of regularly engaging library users in sports, arts, and cultural activities. It focuses on developing personal imagination, creativity, aesthetic perception, physical fitness, and communication skills through various formats.	5	4	3	2	1	5	4	3	2	1
4. Directing: Leadership in innovative libraries focuses on digital transformation and service efficiency, ensuring a seamless integration of smart technology into library operations.										
1) Directing helps librarians help library users' literacy and numeracy skills, critical thinking and innovation, and cognitive qualities.	5	4	3	2	1	5	4	3	2	1
2) Directing helps librarians support library users in developing application skills and application abilities, stimulates adaptability to changes in the work environment, and the ability to change and apply knowledge through actual library staff.	5	4	3	2	1	5	4	3	2	1
3) Directing fosters library users' respect, empathy, and understanding of one another, as well as an appreciation for their history and traditions through the conduct of staff.	5	4	3	2	1	5	4	3	2	1
4) Directing helps librarians to encourage library users to regularly participate in sports, arts, and cultural activities and focuses on the development of personal imagination, creativity, aesthetic perception, physical fitness, and communication skills through various formats.	5	4	3	2	1	5	4	3	2	1

The innovative library management based on the concept of lifelong learning (Internal Environment)	Current situation					Desirable situation				
	more	less	more	less		more	less	more	less	
	5	4	3	2	1	5	4	3	2	1
5. Coordinating: These libraries establish partnerships beyond government institutions, collaborating with tech companies, universities, and digital education providers.										
1) Coordinating supports networking with all agencies to help library users improve their literacy and numeracy skills, critical thinking and innovation, and cognitive qualities, such as perseverance, curiosity, and collaboration.	5	4	3	2	1	5	4	3	2	1
2) Coordinating supports cultivating library users' application skills and abilities, constantly adapting to changes in the work environment, and transforming and applying knowledge.	5	4	3	2	1	5	4	3	2	1
3) Coordination involves promoting library users' respect, empathy, and understanding of one another. It also helps library users develop an appreciation for their history and traditions, which helps build social unity.	5	4	3	2	1	5	4	3	2	1
4) Coordinating also builds the library network to encourage users to regularly participate in sports, art, and cultural activities and focus on developing personal imagination, creativity, aesthetic awareness, physical fitness, and communication skills through various forms.	5	4	3	2	1	5	4	3	2	1
6. Reporting: Unlike traditional methods of manual tracking, innovative libraries utilize real-time data analytics and AI-generated reports to evaluate user engagement and optimize resources.										
1) Reporting provides information about library users. It helps develop literacy and numeracy skills, critical thinking and innovation abilities, and the perceived quality of library users.	5	4	3	2	1	5	4	3	2	1
2) Reporting also collects user demand information in all aspects to improve library users' application skills and abilities, such as their ability to adapt to changes in their work environment and to change and apply knowledge in their lives.	5	4	3	2	1	5	4	3	2	1
3) Reporting helps library users develop respect, care, understanding of others, and appreciation of history and tradition. This covers the various aspects of building an acceptable social environment	5	4	3	2	1	5	4	3	2	1
4) Reporting also accumulates information to increase library users' knowledge and readiness to help the community. Through various activities, library users can express themselves to society as complete people physically and mentally.	5	4	3	2	1	5	4	3	2	1
7. Budgeting: Innovative libraries require technology-focused financial planning, including allocating funds to smart infrastructure, AI learning tools, and automated system maintenance.										
1) Budgeting takes into account building library users with literacy and numeracy skills, desirable characteristics in this new era, such as being critical thinkers and innovators and living together in goodwill and generosity toward one another.	5	4	3	2	1	5	4	3	2	1
2) Budgeting considers building library users' application skills and abilities to be able to practically adapt to changes in various environments and improve	5	4	3	2	1	5	4	3	2	1

The innovative library management based on the concept of lifelong learning (Internal Environment)	Current situation					Desirable situation				
	more		less			more		less		
	5	4	3	2	1	5	4	3	2	1
their ability to live happily amidst rapid changes in their surroundings.										
3) Budgeting helps library users understand the importance of creating unity, compassion and respect for each other's dignity and rights, and should not be divided despite different histories and traditions.	5	4	3	2	1	5	4	3	2	1
4) Budgeting helps to encourage library users to be athletic, artistic, and cultural enthusiasts. Library users become people who can express their personal imagination, creativity, aesthetic perception, and physical and mental abilities to others.	5	4	3	2	1	5	4	3	2	1
8. Information Resource Management: Traditional libraries rely on manual cataloging; however, innovative libraries use AI-powered indexing, cloud-based databases, and interactive e-learning platforms for efficient resource management.										
1) Information resource management helps library users develop literacy, numeracy, and other desirable skills in the era of technology and change.	5	4	3	2	1	5	4	3	2	1
2) Information resource management helps library users adapt to changes in their work and daily living environment, even if unexpected changes or events occur.	5	4	3	2	1	5	4	3	2	1
3) Information resource management fosters library users' understanding and practice of respect, empathy, and understanding toward others nationally and internationally, regardless of different backgrounds or even conflicting histories and traditions.	5	4	3	2	1	5	4	3	2	1
4) Information resource management helps library users to gain knowledge and understanding, express themselves with good sportsmanship, art, and culture, and become people others respect and accept in the era of leading innovation.	5	4	3	2	1	5	4	3	2	1

1. Respondent's basic information

Gender: Men Women

Age: Under 18 18-30 31-40 41-50 51-60 Over 61

Position: Manager User

Education: High school diploma and below Associate diploma

Bachelor Master Doctor

2. Current and desirable situations of the innovative library management based on the concept of lifelong learning from the internal environment

Please consider the messages that match your opinion and rate them in the blanks based on what you really think. The current situation is how you think the current management of innovative libraries is, and the desirable situation is what you expect the management of innovative libraries to be. Rating description is as follows:

5 means that the current situation / desirable situation is at the highest level.
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 2 means that the current situation / desirable situation is at a low level.
 1 means that the current situation / desirable situation is at the lowest level.

Table 2 User Questionnaire for the Internal Environment

The innovative library management based on the concept of lifelong learning (Internal Environment)	Current situation					Desirable situation				
	more		less			more		less		
	5	4	3	2	1	5	4	3	2	1
Service work (At what level according to fostering of lifelong learning?)										
1. Information Service: While traditional libraries provide book lending and research assistance, innovative libraries enhance accessibility through 24/7 digital libraries, AI-powered reading recommendations, and remote access to online resources.										
1) Information services support library users' literacy and numeracy skills, critical thinking and innovation, and cognitive qualities.	5	4	3	2	1	5	4	3	2	1
2) Information services promote library users' application skills and abilities, including constantly adapting to changes in the work environment and transforming and applying knowledge.	5	4	3	2	1	5	4	3	2	1
3) Information services encourage library users to develop understanding and empathy for others' individuality and to accept their history and traditions. It also inspires library users to live well with others.	5	4	3	2	1	5	4	3	2	1
4) Information services provide regular and digital services to help encourage library users to become thinkers, developers, and practitioners in various fields. It also encourages library users to use their imagination, creativity, aesthetic perception, and physical performance.	5	4	3	2	1	5	4	3	2	1
2. Research Service: Instead of just offering physical reference sections, innovative libraries support data-driven research tools, virtual research assistance, and AI-based knowledge hubs.										
1) Research services support library users in developing essential skills such as reading, writing, and numeracy. These skills can be used in next-level research, which requires critical thinking to create innovations and new knowledge.	5	4	3	2	1	5	4	3	2	1
2) Research services nurture library users into becoming good researchers. They support library users in using research skills to develop research that creates new knowledge, improves work, and solves various problems.	5	4	3	2	1	5	4	3	2	1
3) Research services help library users develop an understanding and respect for the different opinions of others, including appropriate expression both personally and collectively.	5	4	3	2	1	5	4	3	2	1
4) Research services help library users become analysts and researchers in various fields of study. They also cultivate library users' ability to reflect their academic skills through their knowledge, personal imagination, and creativity.	5	4	3	2	1	5	4	3	2	1

The innovative library management based on the concept of lifelong learning (Internal Environment)	Current situation					Desirable situation				
	more		less	more		less	more		less	
	5	4	3	2	1	5	4	3	2	1
3. Space Service: Unlike traditional reading rooms, innovative libraries provide flexible, technology-enhanced environments that encourage interactive, collaborative learning, and immersive digital experiences through AR/VR technologies.										
1) Space services provide library users with space and facilities to learn and explore knowledge and information relevant to their studies.	5	4	3	2	1	5	4	3	2	1
2) Space services provide library users with space and facilities to explore and apply their research skills. They also provide a private space for professional research.	5	4	3	2	1	5	4	3	2	1
3) Space services provide library users with space and facilities that foster an environment of respect, caring, and understanding. They also allow researchers to form groups for study or discussion.	5	4	3	2	1	5	4	3	2	1
4) Space services provide library users with space and facilities that motivate them to express their research skills and reflect their identity as researchers.	5	4	3	2	1	5	4	3	2	1
4. Educational Training: Traditional libraries focus on passive reading, while innovative libraries integrate interactive workshops, online webinars, coding boot camps, and AI-driven learning simulations.										
1) Educational training introduces and disseminates various library services through events and training to help cultivate library users' literacy and numeracy skills, critical thinking and innovation, and cognitive qualities.	5	4	3	2	1	5	4	3	2	1
2) Educational training brings in various library services by cultivating library users' application skills and abilities, the ability to constantly adapt to changes in the work environment, and the ability to transform and apply knowledge.	5	4	3	2	1	5	4	3	2	1
3) Educational training inspires library users to understand, care for and respect humans and the environment, and help library users learning to live together.	5	4	3	2	1	5	4	3	2	1
4) Educational training promotes library users' participation in society. It helps the personal development of practitioners in various fields and motivates library users to pursue their ideal careers.	5	4	3	2	1	5	4	3	2	1

3. Current and desirable situations of the innovative library management based on the concept of lifelong learning from the external environment

Please consider the messages that match your opinion and rate them in the blanks based on what you really think. The current situation is how you think the current management of innovative libraries is, and the desirable situation is what you expect the management of innovative libraries to be. The rating description is as follows:

5 means that the current situation / desirable situation is at the highest level.

4 means that the current situation / desirable situation is at a high level.

3 means that the current situation / desirable situation is at a moderate level.

2 means that the current situation / desirable situation is at a low level.

1 means that the current situation / desirable situation is at the lowest level.

Table 3 Manager Questionnaire for the External Environment

The innovative library management based on the concept of lifelong learning (External Environment PEST)	Current situation					Desirable situation				
	more	less	more	less		more	less	more	less	
	5	4	3	2	1	5	4	3	2	1
Politics (Government policies, and regulations are crucial in shaping innovative libraries. Political support determines policies on digital transformation, knowledge accessibility, and lifelong learning initiatives. Regulations can promote technology adoption and collaboration with educational institutions or impose restrictions limiting expansion and funding opportunities)										
9. To what level do you think the political situation is conducive to the "Management work" of innovative library management in terms of the following aspects based on the concept of lifelong learning?										
1) The political situation affects innovative library management work regarding "learning to know" according to lifelong learning.	5	4	3	2	1	5	4	3	2	1
2) The political situation affects innovative library management work regarding "learning to do" according to lifelong learning.	5	4	3	2	1	5	4	3	2	1
3) The political situation affects innovative library management work regarding "learning to live together" according to lifelong learning.	5	4	3	2	1	5	4	3	2	1
4) The political situation affects innovative library management work regarding "learning to be" according to lifelong learning.	5	4	3	2	1	5	4	3	2	1
Economy (Financial stability impacts library funding, resource allocation, and technology investments. A strong economy enables libraries to expand AI-driven services, digital collections, and research support. At the same time, economic downturns may limit budgets, requiring alternative funding models like public-private partnerships, grants, or community-driven contributions)										
10. To what level do you think the economy situation is conducive to the "Management work" of innovative library management in terms of the following aspects based on the concept of lifelong learning?										
1) The economic situation affects innovative library management work regarding "learning to know" according to lifelong learning.	5	4	3	2	1	5	4	3	2	1
2) The economic situation affects innovative library management work regarding "learning to do" according to lifelong learning.	5	4	3	2	1	5	4	3	2	1
3) The economic situation affects innovative library management work regarding "learning to live together" according to lifelong learning.	5	4	3	2	1	5	4	3	2	1
4) The economic situation affects innovative library management work regarding "learning to be" according to lifelong learning.	5	4	3	2	1	5	4	3	2	1
Society (Libraries serve diverse communities, and societal trends influence service demand. With increasing reliance on remote learning and digital literacy, libraries must adapt by offering inclusive, flexible learning spaces. Understanding different user needs, from students to seniors, helps libraries promote community engagement, collaboration, and equitable access to information)										
11. To what level do you think the social situation is conducive to the "Management work" of innovative library management in terms of the following aspects based on the concept of lifelong learning?										
1) The social situation affects innovative library management work regarding "learning to know" according to lifelong learning.	5	4	3	2	1	5	4	3	2	1

The innovative library management based on the concept of lifelong learning (External Environment PEST)	Current situation					Desirable situation				
	more		less			more		less		
	5	4	3	2	1	5	4	3	2	1
2) The social situation affects innovative library management work regarding “learning to do” according to lifelong learning.	5	4	3	2	1	5	4	3	2	1
3) The social situation affects innovative library management work regarding “learning to live together” according to lifelong learning.	5	4	3	2	1	5	4	3	2	1
4) The social situation affects innovative library management work regarding “learning to be” according to lifelong learning.	5	4	3	2	1	5	4	3	2	1
Technology (Advancements in AI, automation, and digital tools redefine library services. AI-powered cataloging, cloud-based research, and virtual reality learning spaces improve accessibility and efficiency. Emerging technologies like blockchain for data security and smart kiosks for self-service lending help libraries stay innovative and relevant in the digital age)										
12. To what level do you think the technological situation is conducive to the "Management work" of innovative library management in terms of the following aspects based on the concept of lifelong learning?										
1) The technological situation affects innovative library management work regarding “learning to know” according to lifelong learning.	5	4	3	2	1	5	4	3	2	1
2) The technological situation affects innovative library management work regarding “learning to do” according to lifelong learning.	5	4	3	2	1	5	4	3	2	1
3) The technological situation affects innovative library management work regarding “learning to live together” according to lifelong learning.	5	4	3	2	1	5	4	3	2	1
4) The technological situation affects innovative library management work regarding “learning to be” according to lifelong learning.	5	4	3	2	1	5	4	3	2	1

Table 4 User Questionnaire for the External Environment

1) The social situation affects innovative library service work regarding “learning to know” according to lifelong learning.	5	4	3	2	1	5	4	3	2	1
2) The social situation affects innovative library service work regarding “learning to do” according to lifelong learning.	5	4	3	2	1	5	4	3	2	1
3) The social situation affects innovative library service work regarding “learning to live together” according to lifelong learning.	5	4	3	2	1	5	4	3	2	1
4) The social situation affects innovative library service work regarding “learning to be” according to lifelong learning.	5	4	3	2	1	5	4	3	2	1
Technology (Advancements in AI, automation, and digital tools redefine library services. AI-powered cataloging, cloud-based research, and virtual reality learning spaces improve accessibility and efficiency. Emerging technologies like blockchain for data security and smart kiosks for self-service lending help libraries stay innovative and relevant in the digital age)										
8. To what level do you think the technological situation is conducive to the " Service work" of innovative library management in terms of the following aspects based on the concept of lifelong learning?										
1) The technological situation affects innovative library service work regarding “learning to know” according to lifelong learning.	5	4	3	2	1	5	4	3	2	1
2) The technological situation affects innovative library service work regarding “learning to do” according to lifelong learning.	5	4	3	2	1	5	4	3	2	1
3) The technological situation affects innovative library service work regarding “learning to live together” according to lifelong learning.	5	4	3	2	1	5	4	3	2	1
4) The technological situation affects innovative library service work regarding “learning to be” according to lifelong learning.	5	4	3	2	1	5	4	3	2	1

4. Additional comments or suggestions for the innovative library management based on the concept of lifelong learning

4.1. Internal factors that influence the innovative library management based on the concept of lifelong learning:

Other aspects:

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4.2. External factors that influence innovative library management based on the concept of lifelong learning:

Other aspects:

.....

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Appendix C: Research Tools- Assess the Suitability and Feasibility of the Management Strategies

Research Tools- Assess the Suitability and Feasibility of the Management Strategies

Assessing the suitability and feasibility of innovative library management strategies based on the concept of lifelong learning is an important aspect of this study. These strategies are the result of analyzing and summarizing the questionnaire results under the guidance of the advisor. The questionnaire tool has been verified by experts. The researchers sincerely hope that you will evaluate the suitability and feasibility of this draft strategies and give you valuable comments and suggestions, which will be very helpful in promoting innovative library management and lifelong learning.

This evaluation is divided into two parts, the first part is the basic information of the respondents. The second part is about management strategies, for experts to discuss the suitability and feasibility of innovative library management strategies based on the concept of lifelong learning.

1. Part One: Basic Information of Respondents

1. Name:
2. Highest education and degree:
High school diploma and below Associate diploma Bachelor
Master Doctor
3. Research areas:
4. Job title:

2. Part Two: Evaluation of the suitability and feasibility of the management strategies

This research investigated the internal and external environment of innovative library management based on lifelong learning through a questionnaire, and then summarized and analyzed the data using SPSS24 and Microsoft Excel software. Variables were sorted and grouped using PNI-modified values, and further SWOT and TOWS matrix analysis was conducted based on the data analysis results. Finally, innovative library management strategies based on the concept of lifelong learning were developed based on the analysis results of the internal and external environment. All strategies are formulated based on the results of data analysis. The details of the management strategies are as follows. Experts are requested to evaluate the strategies, which is very important for the research. Thank you very much.

Table 1 Proposed Strategies for Evaluating the Suitability and Feasibility of Management Strategies

Management strategies
Main Strategy 1
Modernize Library Management with Smart Solutions to Support Hands-On Learning for Lifelong Growth
Sub-Strategy 1.1
Use Strong Information Management to Solve Social Challenges
Procedures:
<ol style="list-style-type: none"> 1. Work with library users to develop collections that meet local needs. 2. Partner with businesses to create digital libraries for underserved groups. 3. Encourage library users to promote reading and resource use in schools and workplaces.
Sub-Strategy 1.2
Make Smart Budget Decisions to Reduce Policy Risks
Procedures:
<ol style="list-style-type: none"> 1. Hold budgeting meetings with stakeholders to allocate funds wisely. 2. Monitor policies that impact libraries and adjust strategies accordingly. 3. Use flexible financial models to respond to changes in funding sources.
Sub-Strategy 1.3
Build Tech Partnerships to Overcome Technical Challenges
Procedures:
<ol style="list-style-type: none"> 1. Host workshops where users can help test and suggest new tech solutions. 2. Collaborate with AI developers to create chatbots and virtual learning tools. 3. Offer digital literacy programs to help users engage with library technology.
Sub-Strategy 1.4
Expand Funding Sources to Strengthen Financial Stability
Procedures:
<ol style="list-style-type: none"> 1. Launch crowdfunding campaigns to support library improvements. 2. Introduce membership programs with premium learning resources. 3. Partner with local businesses to sponsor library events and services.
Main Strategy 2
Redesign Library Management with Digital Innovations to Help Communities Learn and Grow Together
Sub-Strategy 2.1

Management strategies	
Make Libraries Community Hubs to Bring People Together	
Procedures:	
<ol style="list-style-type: none"> Encourage users to plan events that address local needs like job training. Create online community spaces where users can share ideas and organize events. Partner with civic groups to offer more diverse and interactive programs. 	
Sub-Strategy 2.2	
Create Lasting Library Policies to Handle External Challenges	
Procedures:	
<ol style="list-style-type: none"> Mobilize library users to advocate for better policies at regional and national levels. Create an advisory group to review and suggest improvements to library policies. Train community members on how to contribute to library governance and policies. 	
Sub-Strategy 2.3	
Use Technology to Promote Inclusive Learning for Everyone	
Procedures:	
<ol style="list-style-type: none"> Develop library apps to help users personalize their learning experience. Create interactive learning platforms that encourage teamwork and collaboration. Host tech competitions where users can develop new tools for library services. 	
Sub-Strategy 2.4	
Tap Into Economic Trends to Strengthen Community Connections	
Procedures:	
<ol style="list-style-type: none"> Partner with local industries to provide skill-building programs that align with emerging job market needs. Transform library spaces into interactive hubs that encourage collaboration and hands-on learning experiences. Organize competitions and projects that tackle local economic challenges and support community growth. 	
Main Strategy 3	
Overcome Weaknesses in Library Management with Data-Driven Strategies to Drive Lifelong Learning Success	
Sub-Strategy 3.1	
Improve Staff Management to Boost Library Performance	
Procedures:	

Management strategies
<ol style="list-style-type: none"> Offer continuous learning programs for library employees. Use AI to forecast staffing needs based on user demand. Provide clear career paths to attract and retain talented staff.
Sub-Strategy 3.2
Strengthen Organizational Structure for Smoother Operations
Procedures:
<ol style="list-style-type: none"> Create advisory boards with users to align services with community needs. Develop digital dashboards for tracking resources and getting user feedback. Encourage cross-department training to improve teamwork and efficiency.
Sub-Strategy 3.3
Set Clear Guidelines and Standards to Support Library Innovation
Procedures:
<ol style="list-style-type: none"> Pair experienced leaders with new managers to ensure consistent service quality. Standardize library operations across different locations for efficiency. Encourage creative thinking by giving staff freedom to propose new ideas.
Sub-Strategy 3.4
Use User Feedback and Data to Adapt Services Quickly
Procedures:
<ol style="list-style-type: none"> Leverage advanced data analytics and AI to monitor user trends and make real-time service improvements. Deploy interactive kiosks, AI chatbots, and virtual forums to efficiently collect user feedback and enhance library services. Perform regular audits and user experience (UX) surveys, using insights from strategic workshops to refine and innovate the library experience.
Sub-Strategy 3.5
Encourage Partnerships and Smart Resource Use for Long-Term Growth
Procedures:
<ol style="list-style-type: none"> Partner with renowned libraries and experts to develop learning frameworks and exchange best practices. Collaborate with educational institutions to organize innovation challenges, professional workshops, and community-driven training programs. Create platforms where businesses offer hands-on projects and mentorship to equip users with real-world skills.
Main Strategy 4
Empower Libraries with Emerging Technologies to Drive Hands-On Learning and Skill Development
Sub-Strategy 4.1

Management strategies	
Create Strong Policies to Keep Library Services Running Smoothly	
Procedures: <ol style="list-style-type: none"> 1. Work with policymakers to create library-friendly regulations. 2. Monitor new policies to keep up with changes that might affect services. 3. Develop a response plan to handle unexpected disruptions. 	
Sub-Strategy 4.2	
Upgrade Educational Services to Keep Up with Technology Changes	
Procedures: <ol style="list-style-type: none"> 1. Offer online courses to make learning more flexible. 2. Introduce virtual and augmented reality tools for immersive experiences. 3. Use AI-powered assistants to help users find and access resources faster. 	
Sub-Strategy 4.3	
Improve Funding Strategies to Ensure Library Sustainability	
Procedures: <ol style="list-style-type: none"> 1. Explore different funding options like grants, sponsorships, and memberships. 2. Encourage local businesses to invest in library development. 3. Create fee-based services that provide premium learning resources while keeping basic services free. 	
Sub-Strategy 4.4	
Enhance Information Resources to Reach More Communities	
Procedures: <ol style="list-style-type: none"> 1. Strengthen interlibrary loans and deploy mobile kiosks to improve resource access for remote and underserved communities. 2. Implement AI-driven catalog recommendations and personalized digital resource delivery to enhance user experience. 3. Engage users in developing shared knowledge resources, including citizen-authored guides and digital repositories. 	
Main Strategy 5	
Partner with Libraries Using Interactive and Inclusive Approaches to Build Stronger Communities Through Lifelong Learning	
Sub-Strategy 5.1	
Strengthen Economic Support to Create Inclusive Learning Spaces	
Procedures:	

Management strategies
<ol style="list-style-type: none"> 1. Develop partnerships with corporations to fund literacy and job training programs. 2. Offer paid professional courses while keeping basic education free. 3. Introduce flexible pricing models for premium library services.
Sub-Strategy 5.2
Use Technology to Promote Collaborative Digital Learning
Procedures:
<ol style="list-style-type: none"> 1. Provide free access to digital libraries for low-income groups. 2. Develop smart learning platforms that adapt to users' needs. 3. Ensure that all digital services are accessible to people with disabilities.
Sub-Strategy 5.3
Support Policies That Encourage Seamless Library Integration
Procedures:
<ol style="list-style-type: none"> 1. Work with local governments to secure consistent funding. 2. Encourage policymakers to recognize libraries as essential for lifelong learning. 3. Engage the public in discussions about how libraries can better serve their needs.
Sub-Strategy 5.4
Expand Community Services to Connect and Support More People
Procedures:
<ol style="list-style-type: none"> 1. Partner with local NGOs and community groups to encourage user participation in social and volunteer activities. 2. Use library spaces for interactive events such as debate forums and cultural programs to promote engagement and community building. 3. Organize hybrid events that combine online and in-person experiences to enhance accessibility and cross-cultural connections.
Main Strategy 6
Enhance Library Services with AI and Smart Learning Tools to Lead in Lifelong Learning
Sub-Strategy 6.1
Enhance Professional Skills to Advance Research Services
Procedures:
<ol style="list-style-type: none"> 1. Offer training programs that focus on research skills. 2. Bring in experts to mentor library staff in specialized fields. 3. Use AI tools to help staff provide better research support.
Sub-Strategy 6.2
Allocate Resources Smartly to Improve Research Results

Management strategies	
Procedures:	
1. Analyze user data to better allocate resources. 2. Create flexible research spaces that meet different study needs. 3. Ensure fair access to resources, especially in underserved areas.	
Sub-Strategy 6.3	
Engage Volunteers to Inspire Community-Driven Innovation	
Procedures:	
1. Recruit skilled volunteers to support research and innovation projects. 2. Create innovation labs where volunteers and users collaborate on new ideas. 3. Offer recognition and rewards for volunteers who contribute significantly.	





Appendix D: Research Tools- Assess the Applicability of the Management Strategies

Research Tools- Assess the Applicability of the Management Strategies

Assessing the applicability of the innovative library management strategies based on the concept of lifelong learning is an important aspect of this study. These strategies are the result of analyzing and summarizing the questionnaire results under the guidance of the advisor. The management strategies have been proven by experts. The researchers sincerely hope that you will evaluate the applicability of the strategies and give you valuable comments and suggestions, which will be very helpful in promoting innovative library management and lifelong learning.

This evaluation form is divided into 2 parts, the first part is the basic information of the respondents. The second part is about the evaluation of the applicability of innovative library management strategies based on the concept of lifelong learning.

1. Basic Information of Respondents

1. Innovative library Name:
2. Gender: Men Women
3. Age: 22-30 31-40 41-50 51-60 Over 61
4. Education: High school diploma and below Associate diploma Bachelor Master Doctor

Description: This assessment is a rating scale, rated on a 3-point scale. Please evaluate the applicability of the management strategies at the corresponding score level according to the actual situation. Please leave your valuable comments in the table.

2. Evaluation of the applicability of the management strategy

This research investigated the internal and external environment of innovative library management based on lifelong learning through a questionnaire, and then summarized and analyzed the data using SPSS24 and Microsoft Excel software. Variables were sorted and grouped using PNI-modified values, and further SWOT and TOWS matrix analysis was conducted based on the data analysis results. Finally, innovative library management strategies based on the concept of lifelong learning were developed based on the analysis results of the internal and external environment. All strategies are formulated based on the results of data analysis. The details of the management strategy are as follows. Innovative library managers are requested to evaluate the strategies. Thank you very much.

Table 1 Applicability Evaluation Form

Management strategies	Evaluation frequency		
	Easy to Apply	Moderate to Apply	Hard to Apply
<i>Main Strategy 1</i>			
Modernize Library Management with Smart Solutions to Support Hands-On Learning for Lifelong Growth			
<i>Sub-Strategy 1.1</i>			
Use Strong Information Management to Solve Social Challenges			
<i>Procedures:</i>			
1. Work with library users to develop collections that meet local needs.			
2. Partner with businesses to create digital libraries for underserved groups.			
3. Encourage library users to promote reading and resource use in schools and workplaces.			
<i>Sub-Strategy 1.2</i>			
Make Smart Budget Decisions to Reduce Policy Risks			
<i>Procedures:</i>			
1. Hold budgeting meetings with stakeholders to allocate funds wisely.			
2. Monitor policies that impact libraries and adjust strategies accordingly.			
3. Use flexible financial models to respond to changes in funding sources.			
<i>Sub-Strategy 1.3</i>			
Build Tech Partnerships to Overcome Technical Challenges			
<i>Procedures:</i>			
1. Host workshops where users can help test and suggest new tech solutions.			
2. Collaborate with AI developers to create chatbots and virtual learning tools.			
3. Offer digital literacy programs to help users engage with library technology.			
<i>Sub-Strategy 1.4</i>			
Expand Funding Sources to Strengthen Financial Stability			
<i>Procedures:</i>			
1. Launch crowdfunding campaigns to support library improvements.			

Management strategies	Evaluation frequency		
	Easy to Apply	Moderate to Apply	Hard to Apply
2. Introduce membership programs with premium learning resources.			
3. Partner with local businesses to sponsor library events and services.			
Main Strategy 2			
Redesign Library Management with Digital Innovations to Help Communities Learn and Grow Together			
Sub-Strategy 2.1			
Make Libraries Community Hubs to Bring People Together			
Procedures:			
1. Encourage users to plan events that address local needs like job training.			
2. Create online community spaces where users can share ideas and organize events.			
3. Partner with civic groups to offer more diverse and interactive programs.			
Sub-Strategy 2.2			
Create Lasting Library Policies to Handle External Challenges			
Procedures:			
1. Mobilize library users to advocate for better policies at regional and national levels.			
2. Create an advisory group to review and suggest improvements to library policies.			
3. Train community members on how to contribute to library governance and policies.			
Sub-Strategy 2.3			
Use Technology to Promote Inclusive Learning for Everyone			
Procedures:			
1. Develop library apps to help users personalize their learning experience.			
2. Create interactive learning platforms that encourage teamwork and collaboration.			
3. Host tech competitions where users can develop new tools for library services.			
Sub-Strategy 2.4			
Tap Into Economic Trends to Strengthen Community Connections			

Management strategies	Evaluation frequency		
	Easy to Apply	Moderate to Apply	Hard to Apply
Procedures:			
1. Partner with local industries to provide skill-building programs that align with emerging job market needs.			
2. Transform library spaces into interactive hubs that encourage collaboration and hands-on learning experiences.			
3. Organize competitions and projects that tackle local economic challenges and support community growth.			
Main Strategy 3			
Overcome Weaknesses in Library Management with Data-Driven Strategies to Drive Lifelong Learning Success			
Sub-Strategy 3.1			
Improve Staff Management to Boost Library Performance			
Procedures:			
1. Offer continuous learning programs for library employees.			
2. Use AI to forecast staffing needs based on user demand.			
3. Provide clear career paths to attract and retain talented staff.			
Sub-Strategy 3.2			
Strengthen Organizational Structure for Smoother Operations			
Procedures:			
1. Create advisory boards with users to align services with community needs.			
2. Develop digital dashboards for tracking resources and getting user feedback.			
3. Encourage cross-department training to improve teamwork and efficiency.			
Sub-Strategy 3.3			
Set Clear Guidelines and Standards to Support Library Innovation			
Procedures:			
1. Pair experienced leaders with new managers to ensure consistent service quality.			

Management strategies	Evaluation frequency		
	Easy to Apply	Moderate to Apply	Hard to Apply
2. Standardize library operations across different locations for efficiency.			
3. Encourage creative thinking by giving staff freedom to propose new ideas.			
Sub-Strategy 3.4			
Use User Feedback and Data to Adapt Services Quickly			
Procedures:			
1. Leverage advanced data analytics and AI to monitor user trends and make real-time service improvements.			
2. Deploy interactive kiosks, AI chatbots, and virtual forums to efficiently collect user feedback and enhance library services.			
3. Perform regular audits and user experience (UX) surveys , using insights from strategic workshops to refine and innovate the library experience.			
Sub-Strategy 3.5			
Encourage Partnerships and Smart Resource Use for Long-Term Growth			
Procedures:			
1. Partner with renowned libraries and experts to develop learning frameworks and exchange best practices.			
2. Collaborate with educational institutions to organize innovation challenges, professional workshops, and community-driven training programs.			
3. Create platforms where businesses offer hands-on projects and mentorship to equip users with real-world skills.			
Main Strategy 4			
Empower Libraries with Emerging Technologies to Drive Hands-On Learning and Skill Development			
Sub-Strategy 4.1			
Create Strong Policies to Keep Library Services Running Smoothly			
Procedures:			
1. Work with policymakers to create library-friendly regulations.			
2. Monitor new policies to keep up with changes that might affect services.			
3. Develop a response plan to handle unexpected disruptions.			

Management strategies	Evaluation frequency		
	Easy to Apply	Moderate to Apply	Hard to Apply
<i>Sub-Strategy 4.2</i>			
Upgrade Educational Services to Keep Up with Technology Changes			
<i>Procedures:</i>			
1. Offer online courses to make learning more flexible.			
2. Introduce virtual and augmented reality tools for immersive experiences.			
3. Use AI-powered assistants to help users find and access resources faster.			
<i>Sub-Strategy 4.3</i>			
Improve Funding Strategies to Ensure Library Sustainability			
<i>Procedures:</i>			
1. Explore different funding options like grants, sponsorships, and memberships.			
2. Encourage local businesses to invest in library development.			
3. Create fee-based services that provide premium learning resources while keeping basic services free.			
<i>Sub-Strategy 4.4</i>			
Enhance Information Resources to Reach More Communities			
<i>Procedures:</i>			
1. Strengthen interlibrary loans and deploy mobile kiosks to improve resource access for remote and underserved communities.			
2. Implement AI-driven catalog recommendations and personalized digital resource delivery to enhance user experience.			
3. Engage users in developing shared knowledge resources, including citizen-authored guides and digital repositories.			
<i>Main Strategy 5</i>			
Partner with Libraries Using Interactive and Inclusive Approaches to Build Stronger Communities Through Lifelong Learning			
<i>Sub-Strategy 5.1</i>			
Strengthen Economic Support to Create Inclusive Learning Spaces			

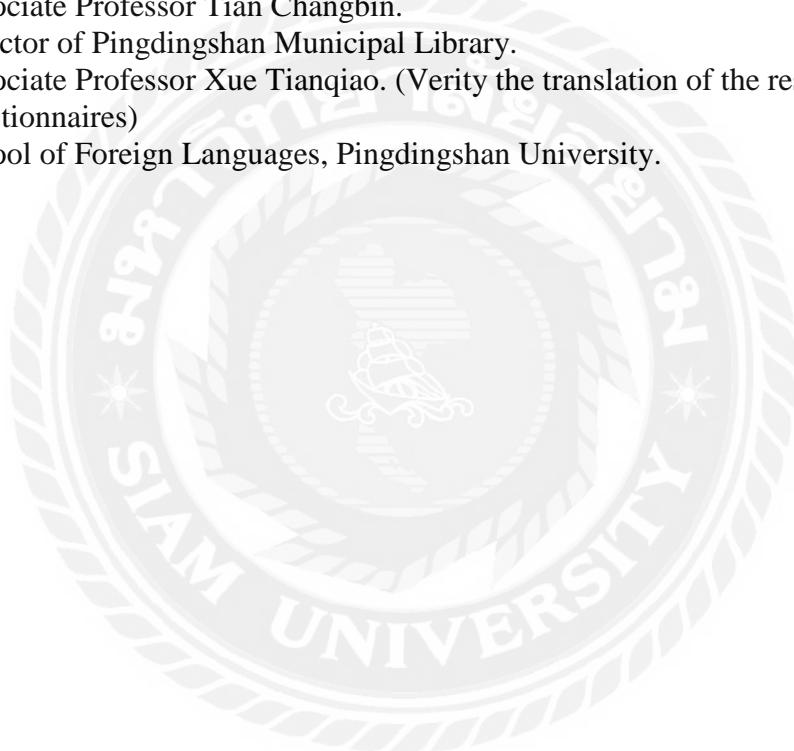
Management strategies	Evaluation frequency		
	Easy to Apply	Moderate to Apply	Hard to Apply
<i>Procedures:</i>			
1. Develop partnerships with corporations to fund literacy and job training programs.			
2. Offer paid professional courses while keeping basic education free.			
3. Introduce flexible pricing models for premium library services.			
<i>Sub-Strategy 5.2</i>			
Use Technology to Promote Collaborative Digital Learning			
<i>Procedures:</i>			
1. Provide free access to digital libraries for low-income groups.			
2. Develop smart learning platforms that adapt to users' needs.			
3. Ensure that all digital services are accessible to people with disabilities.			
<i>Sub-Strategy 5.3</i>			
Support Policies That Encourage Seamless Library Integration			
<i>Procedures:</i>			
1. Work with local governments to secure consistent funding.			
2. Encourage policymakers to recognize libraries as essential for lifelong learning.			
3. Engage the public in discussions about how libraries can better serve their needs.			
<i>Sub-Strategy 5.4</i>			
Expand Community Services to Connect and Support More People			
<i>Procedures:</i>			
1. Partner with local NGOs and community groups to encourage user participation in social and volunteer activities.			
2. Use library spaces for interactive events such as debate forums and cultural programs to promote engagement and community building.			
3. Organize hybrid events that combine online and in-person experiences to enhance accessibility and cross-cultural connections.			
<i>Main Strategy 6</i>			
Enhance Library Services with AI and Smart Learning Tools to Lead in Lifelong Learning			

Management strategies	Evaluation frequency		
	Easy to Apply	Moderate to Apply	Hard to Apply
<i>Sub-Strategy 6.1</i>			
Enhance Professional Skills to Advance Research Services			
<i>Procedures:</i>			
1. Offer training programs that focus on research skills.			
2. Bring in experts to mentor library staff in specialized fields.			
3. Use AI tools to help staff provide better research support.			
<i>Sub-Strategy 6.2</i>			
Allocate Resources Smartly to Improve Research Results			
<i>Procedures:</i>			
1. Analyze user data to better allocate resources.			
2. Create flexible research spaces that meet different study needs.			
3. Ensure fair access to resources, especially in underserved areas.			
<i>Sub-Strategy 6.3</i>			
Engage Volunteers to Inspire Community-Driven Innovation			
<i>Procedures:</i>			
1. Recruit skilled volunteers to support research and innovation projects.			
2. Create innovation labs where volunteers and users collaborate on new ideas.			
3. Offer recognition and rewards for volunteers who contribute significantly.			

Appendix E: Invitation Letter for an Expert

List of the Experts for IOC

1. Associate Professor Fuangarun Preededilok, PhD.
Head of the Policy Department Educational Management and Leadership.
2. Associate Professor Nantarat Charoenkul, PhD.
Educational Administration, Department of Educational Policy, Chulalongkorn University
3. Busakorn Lertveerasirikul, PhD.
Lecturer, Library Director.
4. Professor Wang Wen.
Director of Pingdingshan Children's Library.
5. Associate Professor Tian Changbin.
Director of Pingdingshan Municipal Library.
6. Associate Professor Xue Tianqiao. (Verify the translation of the research questionnaires)
School of Foreign Languages, Pingdingshan University.



SU. 0210.04/ 033



Graduate School of Education
38 Siam University
Petchkasem Bangwa,
Phasicharoan Bangkok 10160

4 June 2024

Dear: Professor Wang Wen
Director of Pingdingshan Children's Library
Subject: Invitation to be an expert to examine research tools

Since Mr. Liu Hu, student ID 6319000016, a doctoral student in English program, Graduate School of Education works on dissertation: "Management Strategies of the Innovative Library in Luoyang City, China based on the Concept of Lifelong Learning" with Prof. Emeritus Dr. Chanita Rukspollmuang (an advisor) and Assistant Professor Dr. Pongsin Visethsiri (a co-advisor), the Graduate School of Education would like to invite you to be an expert to examine the research tools.

Questionnaire regarding current circumstances is a significant tool of the research which is needed to be considered and examined including suggestion for research tools. Mr. Liu Hu will contact and coordinate all details by himself.

We really appreciate your help.

Best regards

Professor Emeritus Dr. Chanita Rukspollmuang
Dean of Graduate School of Education

SU. 0210.04/ 30



Graduate School of Education
Siam University
38 Petchkasem Road Bangwa,
Phasicharoen Bangkok 10160

4 June 2024

Dear: Associate Professor Tian Changbin
Director of Pingdingshan Municipal Library
Subject: Invitation to be an expert to examine research tools

Since Mr. Liu Hu, student ID 6319000016, a doctoral student in English program, Graduate School of Education, works on dissertation: "Management Strategies of the Innovative Library in Luoyang City, China based on the Concept of Lifelong Learning" with Prof. Emeritus Dr. Chanita Rukspollmuang (an advisor) and Asst. Prof. Dr. Pongsin Visethsiri (a co-advisor), the Graduate School of Education would like to invite you to be an expert to examine the research tools.

Questionnaire regarding current circumstances is a significant tool of the research which is needed to be considered and examined including suggestion for research tools. However, Mr. Liu Hu will contact and coordinate all details by himself.

We really appreciate your help.

Best regards


Professor Emeritus Dr. Chanita Rukspollmuang
Dean of Graduate School of Education

SU.0210.04/46



Graduate School of Education
38 Petchkasem Road, Bangwa,
Phasicharoen, Bangkok 10160.

4 July 2024

Dear Associate Professor Xue Tianqiao
School of Foreign Languages, Pingdingshan University
Subject: Invitation to be an expert to verify the translation of the research questionnaires

Mr. Liu Hu, student ID 6319000016, a doctoral student in the English program at the Graduate School of Education, Siam University Thailand, is working on a dissertation: "Management Strategies of the Innovative Library in Luoyang City, China, based on the Concept of Lifelong Learning". Research questionnaires are an essential tool for researchers to find answers.

Since Mr. Liu Hu conducted this research in English, the instrument was designed in English. However, it must be applied to Chinese respondents. Your role as an expert in verifying the translation of the research questionnaire from English into Chinese is of utmost importance for the success of this research. Mr. Liu Hu will contact and coordinate all details himself.

We really appreciate your help.

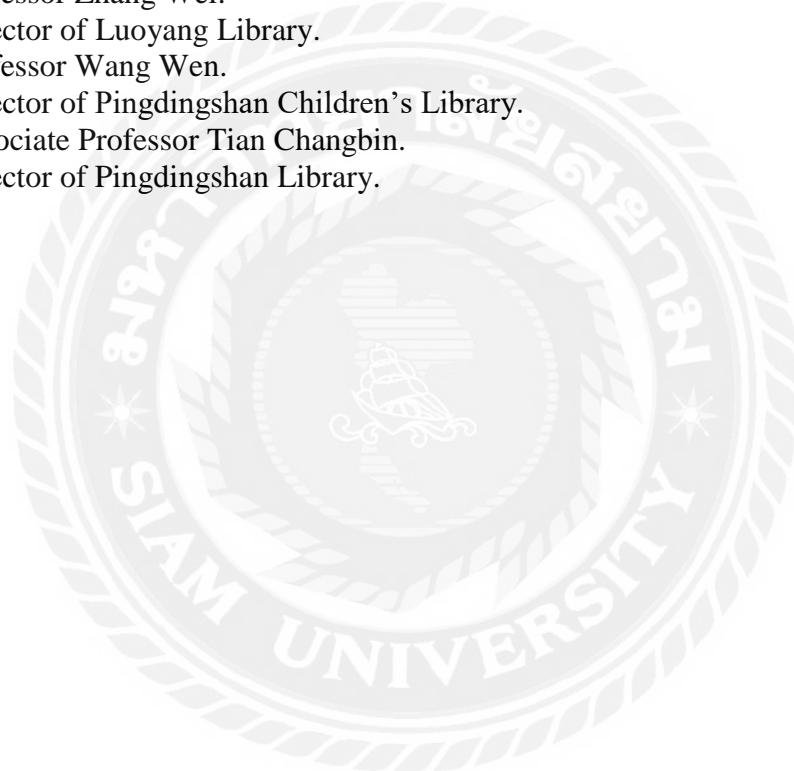
Best wishes

A handwritten signature in black ink, appearing to read "Chanita Ruksopollmuang".

Professor Emeritus Dr. Chanita Ruksopollmuang
Dean of Graduate School of Education

List of the Experts Who Assess the Suitability and Feasibility of the Management Strategies

1. Professor He Jie.
Vice Dean of the Economics and Management, Pingdingshan University
2. Associate Professor Chang Jingying.
Henan Quality Engineering Vocational Collage.
3. Associate Professor Xie Xiaofang.
Henan Quality Engineering Vocational Collage.
4. Associate Professor Li Ning.
Office Director of the Economics and Management, Pingdingshan University.
5. Professor Zhang Wei.
Director of Luoyang Library.
6. Professor Wang Wen.
Director of Pingdingshan Children's Library.
7. Associate Professor Tian Changbin.
Director of Pingdingshan Library.





Graduate School of Education
Siam University
38 Petchkasem Bangwa
Phasi Charoen, Bangkok 10160

6 December 2024

Dear: Professor He Jie

Vice Dean of the School of Economics and Management, Pingdingshan University
Subject: Invitation to be an expert in focus group discussion

Since Mr. Liu Hu, student ID 6319000016, a doctoral student in English program, Graduate School of Education works on a dissertation: "Management Strategies of the Innovative Library in Luoyang City, China based on the Concept of Lifelong Learning" with Prof. Emeritus Dr. Chanita Ruksopollmuang (an advisor) and Asst. Prof. Dr. Pongsin Visethsiri (a co-advisor), the Graduate School of Education would like to invite you to be an expert to provide your opinion in a focus group discussion on innovative library management strategies at 2:00 PM on December 15, 2024 at Pingdingshan Library Conference Room.

Focus group discussion is a significant aspect of the research conclusion that needs an approval. Mr. Liu Hu will contact you and coordinate all details himself later.

We really appreciate your help.

Best Regards

A handwritten signature in black ink, appearing to read "Ch. Ruksopollmuang".

Professor Emeritus Dr. Chanita Ruksopollmuang
Dean of Graduate School of Education



Graduate School of Education
Siam University
38 Petchkasem Bangwa
Phasi Charoen, Bangkok 10160

6 December 2024

Dear: Associate Professor Chang Jingying
Henan Quality Engineering Vocational College
Subject: Invitation to be an expert in focus group discussion

Since Mr. Liu Hu, student ID 6319000016, a doctoral student in English program, Graduate School of Education works on a dissertation: "Management Strategies of the Innovative Library in Luoyang City, China based on the Concept of Lifelong Learning" with Prof. Emeritus Dr. Chanita Rukspollmuang (an advisor) and Asst. Prof. Dr. Pongsin Visethsiri (a co-advisor), the Graduate School of Education would like to invite you to be an expert to provide your opinion in a focus group discussion on innovative library management strategies at 2:00 PM on December 15, 2024 at Pingdingshan Library Conference Room.

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Best Regards


Professor Emeritus Dr. Chanita Rukspollmuang
Dean of Graduate School of Education



Graduate School of Education
Siam University
38 Petchkasem Bangwa
Phasi Charoen, Bangkok 10160

6 December 2024

Dear: Associate Professor Xie Xiaofang
Henan Quality Engineering Vocational College
Subject: Invitation to be an expert in focus group discussion

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We really appreciate your help.

Best Regards

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Professor Emeritus Dr. Chanita Rukspolimuang
Dean of Graduate School of Education



Graduate School of Education
Siam University
38 Petchkasem Bangwa
Phasi Charoen, Bangkok 10160

6 December 2024

Dear: Associate Professor Li Ning

Office Director of the School of Economics and Management, Pingdingshan University
Subject: Invitation to be an expert in focus group discussion

Since Mr. Liu Hu, student ID 6319000016, a doctoral student in English program, Graduate School of Education works on a dissertation: "Management Strategies of the Innovative Library in Luoyang City, China based on the Concept of Lifelong Learning" with Prof. Emeritus Dr. Chanita Rukspollmuang (an advisor) and Asst. Prof. Dr. Pongsin Visethsiri (a co-advisor), the Graduate School of Education would like to invite you to be an expert to provide your opinion in a focus group discussion on innovative library management strategies at 2:00 PM on December 15, 2024 at Pingdingshan Library Conference Room.

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Mr. Liu Hu will contact you and coordinate all details himself later.

We really appreciate your help.

Best Regards


Professor Emeritus Dr. Chanita Rukspollmuang
Dean of Graduate School of Education



Graduate School of Education
Siam University
38 Petchkasem Bangwa
Phasi Charoen, Bangkok 10160

6 December 2024

Dear: Professor Zhang Wei
Director of Luoyang Library
Subject: Invitation to be an expert in focus group discussion

Since Mr. Liu Hu, student ID 6319000016, a doctoral student in English program, Graduate School of Education works on a dissertation: "Management Strategies of the Innovative Library in Luoyang City, China based on the Concept of Lifelong Learning" with Prof. Emeritus Dr. Chanita Rukspollmuang (an advisor) and Asst. Prof. Dr. Pongsin Visetthiri (a co-advisor), the Graduate School of Education would like to invite you to be an expert to provide your opinion in a focus group discussion on innovative library management strategies at 2:00 PM on December 15, 2024 at Pingdingshan Library Conference Room.

Focus group discussion is a significant aspect of the research conclusion that needs an approval. Mr. Liu Hu will contact you and coordinate all details himself later.

We really appreciate your help.

Best Regards

A handwritten signature in black ink, appearing to read 'Chanita Rukspollmuang'.

Professor Emeritus Dr. Chanita Rukspollmuang
Dean of Graduate School of Education



Graduate School of Education
Siam University
38 Petchkasem Bangwa
Phasi Charoen, Bangkok 10160

6 December 2024

Dear: Professor Wang Wen
Director of Pingdingshan Children's Library
Subject: Invitation to be an expert in focus group discussion

Since Mr. Liu Hu, student ID 6319000016, a doctoral student in English program, Graduate School of Education works on a dissertation: "Management Strategies of the Innovative Library in Luoyang City, China based on the Concept of Lifelong Learning" with Prof. Emeritus Dr. Chanita Rukspollmuang (an advisor) and Asst. Prof. Dr. Pongsin Visethsiri (a co-advisor), the Graduate School of Education would like to invite you to be an expert to provide your opinion in a focus group discussion on innovative library management strategies at 2:00 PM on December 15, 2024 at Pingdingshan Library Conference Room.

Focus group discussion is a significant aspect of the research conclusion that needs an approval. Mr. Liu Hu will contact you and coordinate all details himself later.

We really appreciate your help.

Best Regards


Professor Emeritus Dr. Chanita Rukspollmuang
Dean of Graduate School of Education



Graduate School of Education
Siam University
38 Petchkasem Bangwa
Phasi Charoen, Bangkok 10160

6 December 2024

Dear: Associate Professor Tian Changbin
Director of Pingdingshan Library
Subject: Invitation to be an expert in focus group discussion

Since Mr. Liu Hu, student ID 6319000016, a doctoral student in English program, Graduate School of Education works on a dissertation: "Management Strategies of the Innovative Library in Luoyang City, China based on the Concept of Lifelong Learning" with Prof. Emeritus Dr. Chanita Ruksopollmuang (an advisor) and Asst. Prof. Dr. Pongsin Visethsiri (a co-advisor), the Graduate School of Education would like to invite you to be an expert to provide your opinion in a focus group discussion on innovative library management strategies at 2:00 PM on December 15, 2024 at Pingdingshan Library Conference Room.

Focus group discussion is a significant aspect of the research conclusion that needs an approval. Mr. Liu Hu will contact you and coordinate all details himself later.

We really appreciate your help.

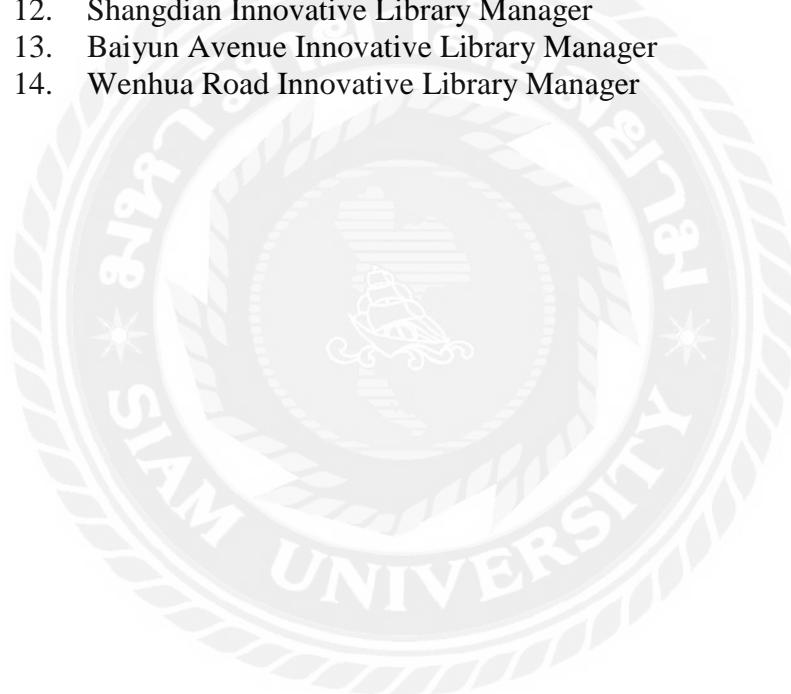
Best Regards,

A handwritten signature in black ink, appearing to read "Chanita" or a similar name.

Professor Emeritus Dr. Chanita Ruksopollmuang
Dean of Graduate School of Education

List of the Innovative Library Manager Who Assess the Applicability of the Management Strategies

1. Jiefang North Road Innovative Library Manager
2. Yingtianmen Innovative Library Manager
3. Zhengkangyuan Innovative Library Manager
4. Tongtuo Muyu Innovative Library Manager
5. Yellow River Park Innovative Library Manager
6. Huaxia Square Innovative Library Manager
7. Penglai Road Garden Innovative Library Manager
8. Hangzhou Road Innovative Library Manager
9. West Street Innovative Library Manager
10. Luoshenju Innovative Library Manager
11. Zhenxing Square Innovative Library Manager
12. Shangdian Innovative Library Manager
13. Baiyun Avenue Innovative Library Manager
14. Wenhua Road Innovative Library Manager



Researcher Vitae

Mr. Liu Hu is an emerging scholar and professional practitioner in the field of cultural and educational management. With a strong academic background in engineering and a growing specialization in educational administration, Mr. Liu has dedicated his career to advancing the innovative integration of cultural and educational systems in China.

Currently employed in the Chinese cultural sector, he has cultivated a deep interest in the application of intelligent management strategies that enhance the synergy between culture and education. His research endeavors focus on the development and implementation of technology-driven solutions aimed at fostering innovation, accessibility, and sustainability within cultural institutions and educational organizations.

Over the course of his professional journey, Mr. Liu has been actively involved in interdisciplinary projects that explore the dynamic intersections between digital technologies, educational reform, and cultural preservation. His commitment to academic excellence and practical innovation is demonstrated through his ongoing doctoral research, which examines models of educational administration innovation and their applicability to the evolving cultural landscape of East Asia.

Educational Background

- **Ph.D. Candidate** in Educational Administration Innovation, *Siam University*, Bangkok, Thailand (2023–present)
Research Focus: Innovative leadership and intelligent management in cultural and educational institutions.
- **Master of Engineering** in Printing and Packaging Technology and Equipment, *Xi'an University of Technology*, Xi'an, China (2012)
Thesis: Process optimization in advanced printing technologies.
- **Bachelor of Engineering** in Printing Engineering, *PLA Information Engineering University*, Zhengzhou, China (2009)
Specialization: Industrial engineering and digital printing systems.