

Development of a Management Model for Excellence, Table Tennis Association in Inner Mongolia Autonomous Region

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Abstract

Background and Aim: In recent years, most of China's table tennis associations for excellence still adopt the traditional management model, and the management system is used as a central model without any specific management model for special areas or different environments. The objective of this study was to develop a management model for the Excellence Table Tennis Association in the Inner Mongolia Autonomous Region.

Materials and Methods: This research was a mixed study; it combines quantitative and qualitative research. To survey the current situation of the management for excellence table tennis association in Inner Mongolia Autonomous Region, the researcher administered 390 questionnaires under the 7S management framework to 11 cities in Inner Mongolia. The validity of the questionnaire was tested by the IOC value by 5 experts (IOC = 0.88-0.95). Nine experts were interviewed under the POLC management principles to find a way to draft a management model. 17 experts were invited to participate in a three-round Delphi consensus process, and the Connoisseurship method was used to confirm the management model by 7 experts.

Results: The management model for excellence table tennis association in Inner Mongolia Autonomous Region, designed using the 7S management framework, consists of 102 components, divided into 15 strategy components, 14 structure components, 15 style components, 14 systems components, 14 staff components, 15 skills components, and 15 shared values components. For the POLC management principles, there were 58 models, divided into 14 planning components, 14 organizing management components, 15 leading components, and 15 controlling components.

Conclusion: The management model for excellence table tennis association in Inner Mongolia Autonomous Region under the 7s management framework and POLC Management principles, to the Delphi data collection method and reached consensus and agreed on the elements of the management model.

Keywords: Management Model; Excellence Table Tennis Association; Inner Mongolia Autonomous Region

Introduction

With the expansion of China's national fitness program and rising public interest in sport, table tennis associations have become visible markers of socio-economic progress and civic culture. Yet prior studies show wide variation in association management across regions and countries and still treat “management” largely in generic terms rather than as context-specific system design (Liu Xing, 2014). In practice, many excellence-oriented associations continue to rely on traditional, centrally oriented arrangements, producing operational symptoms such as slow member onboarding, weak quantitative supervision of instructors, fragmented customer information, and incomplete financial statistics (Huang Chao, 2012). These shortcomings are magnified in Inner Mongolia, where geography and climate offer a distinctive training advantage in hypoxic, high-altitude environments that can enhance aerobic capacity and endurance (Wu Xinfeng, 2020) but also impose unique organizational and risk-management demands.

To date, there is no management model explicitly developed for the high-altitude context of the Inner Mongolia Autonomous Region. Existing frameworks borrowed from urban/plains settings neither translate altitude-specific physiological demands into strategy, structure, and systems nor embed altitude risk controls (e.g., AMS protocols, SpO₂/Recovery Index monitoring) into routine planning and evaluation. As a result, resource allocation remains inefficient, and the region's environmental advantages remain under-leveraged.

This study's contribution and novelty. We propose and validate the first context-specific “management model for excellence” for Inner Mongolia table tennis associations, purpose-built for high-altitude conditions. The model integrates the 7S framework, defining what the association must have to excel (Strategy, Structure, Systems, Style, Staff, Skills, Shared Values), with the POLC management cycle specifying how to execute (Planning, Organizing, Leading, Controlling). This 7S+POLC integration is intentional: 7S ensures comprehensive organizational alignment (vision, roles, digital/SOP infrastructure, culture), while POLC operationalizes those elements into quarterly plans, clear ownership, participative leadership, and KPI-based control loops (e.g., win rate, podiums, SpO₂ recovery, platform uptime).

Concretely, the model (1) ties a high-altitude vision to measurable KPIs; (2) formalizes an altitude-operations unit and field-lab interfaces; (3) standardizes SOPs and a single digital platform for training/biometrics/competition data; (4) develops altitude-specific staff skills and psychological-safety practices; and (5) installs real-time dashboards and lessons-learned cycles to continuously improve. In doing so, it addresses the precise deficiencies noted in prior work (Liu Xing, 2014; Huang Chao, 2012) while converting Inner Mongolia's environmental assets into a structured, governable advantage (Wu Xinfeng, 2020). Accordingly, this study establishes and confirms a high-altitude-adapted management model

under 7S + POLC to solve current system problems, improve resource-allocation efficiency, and raise organizational and athlete performance quality in the Inner Mongolia Autonomous Region.

Objectives

To develop the management model for the Excellence Table Tennis Association in the Inner Mongolia Autonomous Region.

Literature Review

1. The concept of the Inner Mongolia Autonomous Region.

Inner Mongolia Autonomous Region is in the north of China. It borders eight provinces in the east, west, and south: Heilongjiang, Jilin, Liaoning, Hebei, Shanxi, Shaanxi, Gansu, and Ningxia. It borders Mongolia and Russia to the north. The total area of the Inner Mongolia Autonomous Region is 1,183,000 square kilometers, accounting for 12.3 percent of the country's total area. It is the third largest after the Xinjiang Autonomous Region and the Tibet Autonomous Region.

Highland usually refers to the height relative to sea level. The definition of highland may vary in different fields and contexts. From the perspective of geography and meteorology, areas with an altitude of more than 1500 meters can be considered highland (Wang Yehui, 2017). From the perspective of sports medicine and mountaineering, for climbers and outdoor sports enthusiasts, high altitude usually refers to areas above 2000 meters above sea level, because within this altitude range, the human body may be affected by altitude sickness. From the perspective of physiology and medicine, high altitude usually refers to areas above 2500 meters above sea level. Within this altitude range, the human body begins to experience high-altitude reactions, such as hypoxia, low atmospheric pressure, and other changes. In general, the definition of high altitude varies with different research fields and contexts, but areas with an altitude of more than 1500 meters can be considered highland areas (Ma Jinping, 2024).

1.1 Differences between the normal area and the highland.

The current altitude in China is divided into highland areas (such as the Qinghai-Tibet Plateau). Highlands are generally above 4,000 meters. Due to the highland, the air is thin, the oxygen content is low, and the distance that solar radiation passes through the atmosphere is short, resulting in less solar radiation energy received by the surface, and the climate is dry and cold. Training in such an environment is prone to cause a series of problems, such as altitude sickness and lung dysfunction. The environmental characteristics of a normal area are warm and humid. They belong to the subtropical monsoon climate zone, with average temperatures throughout the four seasons, high annual precipitation, and lush vegetation. The

altitude is between 1,500 and 2,500 meters. This is exactly in line with the most ideal altitude in the world, 2,000 to 2,500 meters (Zhang Wei, 2004). This is because the highland environment within this range can provide sufficient hypoxic stimulation to promote athletes' physical adaptation and physiological changes, and will not make athletes unable to bear it, and reduce training effects due to excessive altitude.

2. Impacts on the body and environment of the highland.

2.1 The Highland environment affects cognitive function and thus affects an individual's psychological state.

The study of the impact of the highlands on cognitive function has always been a hot topic in highland research. Long-term hypoxia challenges human physical and mental health, limits work efficiency, and thus affects plateau economic development and human well-being. Therefore, studying how long-term exposure to a hypoxic highland environment affects the physical and mental health of lowland people has scientific and social significance for the sustainable development of current plateau areas. A study reviewed the research progress and mechanism of the impact of long-term (≥ 1 year) highland (> 2500 meters) hypoxic exposure on cognitive function of lowland residents and suggested that the research scope and sample size should be expanded in the future, and follow-up studies should be conducted to explore the time threshold of cognitive impairment and its compensation or repair mechanism (Lai et al., 2015).

Niu et al. (2019) published an article titled "Effects of Acute Hypoxia on Cognitive Function, Motion Sickness, and Emotion in Virtual Reality Environments". This study used virtual reality technology to explore the effects of acute hypoxia on cognitive function, motion sickness, and emotion. The results showed that under acute hypoxic conditions, participants' cognitive abilities were significantly reduced, motion sickness symptoms were aggravated, and their emotions became depressed.

2.2. From the perspective of the high incidence of altitude sickness in high-altitude environments.

The study found that hypertensive patients living in high-altitude areas generally have anxiety and depression, and some patients even reach severe levels. At the same time, the study also analyzed the impact of related factors, including social and psychological factors, physiological adaptability, etc., on the anxiety and depression of patients. This study provides important clues for understanding the health status of residents in the highland and proposes possible intervention measures. The publication of the article provides useful information for further understanding the health problems of residents in the highland (Lu et al., 2019).

Westman et al. (2015)'s article "The impact of hiking on medical treatment and health perception of people in the highland ". The study aims to explore the impact of hiking in the highlands on participants' medical treatment and health perception. The results showed that

hikers need medical treatment less than other highland residents and show better health perception.

The highland is a high-incidence area for hyperuricemia and hypertension. In recent years, research progress has been made on the correlation between hyperuricemia and hypertension in the highlands. Studies have shown that the uric acid level of residents in the highland is generally high and is positively correlated with the incidence of hypertension (Zhang et al., 2023). The prevalence of hypertension is extremely high in the highlands of Nagqu, Tibet. The main risk factors include age, drinking, overweight, hyperglycemia, dyslipidemia, and hyperuricemia. The prevention and treatment of hypertension in this area should be strengthened, and attention should be paid to the adjustment of lifestyle and the treatment of related diseases to reduce the prevalence of hypertension in this area (Yan et al., 2023).

2.3 The effects of different altitudes on the individual's physical and mental state.

Altitude refers to the vertical height of a point above the ground, while emotions refer to the subjective feelings and emotional experiences of an individual at a specific time and in a specific situation. Studies have found that people in highland environments are prone to psychological problems such as anxiety and depression, which also affect people's cognitive functions and emotional states (Zhang Hua, 2017). The article also pointed out that changes in altitude and exposure time will have certain physiological effects on the human body, such as dyspnea, headache, and other discomfort symptoms, which will further affect people's emotional state (Xiang Yuqin, 2028).

The study found that there are certain differences and individual differences in the impact of altitude on emotions. On the one hand, due to factors such as thin oxygen and low atmospheric pressure at high altitudes, people may experience emotional instability, anxiety, depression, and other problems. On the other hand, the natural landscape and pleasant climate in the highlands may also produce positive emotional experiences, such as excitement, happiness, and contentment (Ma Tianhui, 2016).

2.4 The Highland environment affects individual sleep and thus individual emotions.

The study found that among Tibetan adolescents in the highlands, females, those who are physically inactive, and those who are sleep deprived have higher levels of social anxiety. After adjusting for relevant variables, lack of sleep was positively correlated with social anxiety, and this association was statistically significant in adolescents of different genders, age groups, weight status, and physical activity status (Miao Qiuxiang, 2023).

The study also found that social anxiety was more common among females, those aged 13-15 years, and those who were sleep deprived. Tibetan junior high school students in

high-altitude areas have poor sleep quality and common sleep disorders (Liu Yongqing, 2023). Tajik middle school students in the highlands generally have poor sleep quality, and the detection rate of depression and anxiety symptoms is also high. Studies have shown that there is a certain connection between sleep and depression and anxiety.

2.5 The impact of the highland environment on physiological functions.

In the field of competitive sports, highland training has been widely used in athletes' training plans to improve athletic performance. This is mainly because the highland environment can improve endurance and oxygen uptake capacity. The low oxygen environment in the plateau can stimulate the athlete's body to produce adaptive changes. Due to the low oxygen content in the air, athletes must enhance their self-supply capacity to adapt to this environment. This adaptive change includes increasing the hemoglobin content and the oxygen-carrying capacity of the blood, thereby helping athletes to better utilize oxygen during competition and maintain high-intensity athletic performance. During plateau training, the number of red blood cells in the athlete's body will increase automatically. This is because red blood cells are responsible for transporting oxygen, and the low oxygen in the highland environment prompts the body to produce more red blood cells to meet demand (Liu Ting, 2017).

3. The current situation of table tennis association management for excellence.

Sports and fitness associations are a new service system that has emerged with the acceleration of industrialization and urbanization in human society, with the core value of improving people's quality of life and interests. It is not only the product of the socialization and industrialization of sports activities under the market economy, but also the actual survival and operation mode of sports under the market economy. The 2008 Beijing Olympic Games coincided with the "Eleventh Five-Year Plan" period of my country. The scientific development concept, a new state governance strategy, and governing philosophy require us to think soberly and rationally about the future development of sports and the sports industry. After 2008, in the "post-Olympic era", where will our sports go? How can sports associations develop? How can we better adhere to the people-oriented principle, promote comprehensive and harmonious development, achieve sustainable development, and consider all aspects (Hu et al, 2005)?

The first phase of the second phase of the National Fitness Program Outline proposed that the initial establishment of a diversified sports service system for the masses is one of the main tasks of the implementation plan (Zhao Jinjin, 2008). Fitness associations are an important part of building a national fitness service system. To accelerate the development of sports associations and strengthen the management of sports associations, the State Sports General Administration issued the Opinions on Accelerating the Development of Sports Associations and Strengthening the Management of Sports Associations in 1999, marking the

in-depth development of my country's sports system reform, the grassroots sports organization structure is changing, and institutional innovation is beginning to emerge.

In 2006, the Jiangsu Provincial Sports Bureau also pointed out in the Outline of the Jiangsu Sports Industry Revitalization Plan that it would actively advocate "social sports run by the society, national fitness and national participation" to promote the socialization, life, and branding of sports. Guide and encourage all sectors of society to invest in the fitness and entertainment industry, and gradually realize the diversification of investment entities, financing channels, and business models. Sports stadiums, fitness centers, associations, community towns, and village cultural and sports stations should be open to the public and provide venues, facilities, and technical guidance services for the masses to carry out sports activities (Xiao Linpeng, 2009).

3.1 Research on table tennis associations

Li Tie (2004) found in his article "Investigation on the Situation of Amateur Table Tennis Fitness Associations in Harbin" that table tennis associations in Harbin have a broad mass base, which has played a wide role in promoting the development of table tennis. He suggested that the grassroots competent departments should scientifically manage and improve the venues and facilities to enhance the initiative and enthusiasm of the whole people to participate in table tennis. It is concluded that the table tennis amateur associations in Harbin have the material basis for the development of table tennis. Under the premise of having good venues and equipment conditions, there is still a situation of supply exceeding demand.

Liu Jiede's (2008) study on the current situation and development strategies of Wuhan's commercial table tennis associations shows that: 1. The scale of commercial table tennis associations in Wuhan is mainly medium, the location layout is relatively reasonable, the operation mode is mainly membership-based, and the operating benefits are generally good. 2. The table tennis coaches of Wuhan's commercial table tennis associations have various teaching methods, and the remuneration is generally not high. They mainly rely on self-study to improve their comprehensive ability. 3. The consumption mode of consumers of Wuhan's commercial table tennis associations is generally membership; the consumption motivation is diverse, and the factors restricting consumer consumption are complex. 4. The problems existing in Wuhan's commercial table tennis associations include an imperfect management system, a low degree of chain operation, low quality of management talents, and weak consumer consumption awareness. 5. There are many problems in the actual development of Wuhan's commercial table tennis associations, and it is necessary to strengthen the construction of laws and regulations and industry supervision, improve the service structure, promote chain operation, strengthen the construction of table tennis association team members, and increase publicity efforts.

Niu Lishu et al. (2005) in "A Brief Analysis of the Current Situation of Table Tennis Associations in China", believe that there are contradictions in the "dual-track" management of athletes in my country's table tennis associations, insufficient self-generating function and single capital injection, unscientific management model and low management level of table tennis associations, lack of market operation and low market development level of table tennis associations, lack of novelty in the promotion and packaging of table tennis associations events, and unclear property rights of table tennis associations.

In some first-tier cities in China, due to their relatively strong economic strength and relatively high living standards, public fitness associations are commonplace and indispensable. Each district has dozens of single-item fitness associations or multi-item fitness associations, and some districts even have hundreds of them. However, under this huge appearance, there are many hidden secrets. For example, in Nanjing, the business and operation form of Nanjing fitness associations is mainly comprehensive fitness. Large-scale associations have many fitness projects, which provide consumers with more choices for fitness. Most fitness associations are medium- and low-end fitness associations with low fees, and there is an extremely uneven distribution of locations (Wang Yonghong, 2003).

4. Sport association management for excellence

"Management" means a process of operations that has a plan, a purpose, and a direction for change to something better and more stable than before, along with the meaning of "Sports for excellence," which means a competitive sport that aims for the efficiency of athletes to have the opportunity to show their sports excellence.

Sports management for excellence can be concluded as a process of operations that has a plan, a purpose, and a direction for change in sports competitions that aims for the efficiency of athletes to have the opportunity to show their sports excellence and to be champions. Pinij Kulawanich (1996) said that athletes who will be excellent must consist of:

1. Talent, meaning being born good or having the physiology that supports it.
2. Having the right training.
3. Eating the right food.

Therefore, it can be concluded that sports management in the Sports University for Excellence must give importance to the application of management processes to sports for the organization's operations to achieve its goals.

Summary: Sports management for excellence is a structured process aimed at enhancing athletes' performance and providing opportunities to showcase their excellence in competitions. It involves key factors such as talent, proper training, and nutrition. To achieve excellence, improvements are needed in training facilities, professional sports systems, promotion, and funding.

Conceptual Framework

The research title “Development of Management Model for Excellence Table Tennis Association in Inner Mongolia Autonomous Region” was designed as follows.

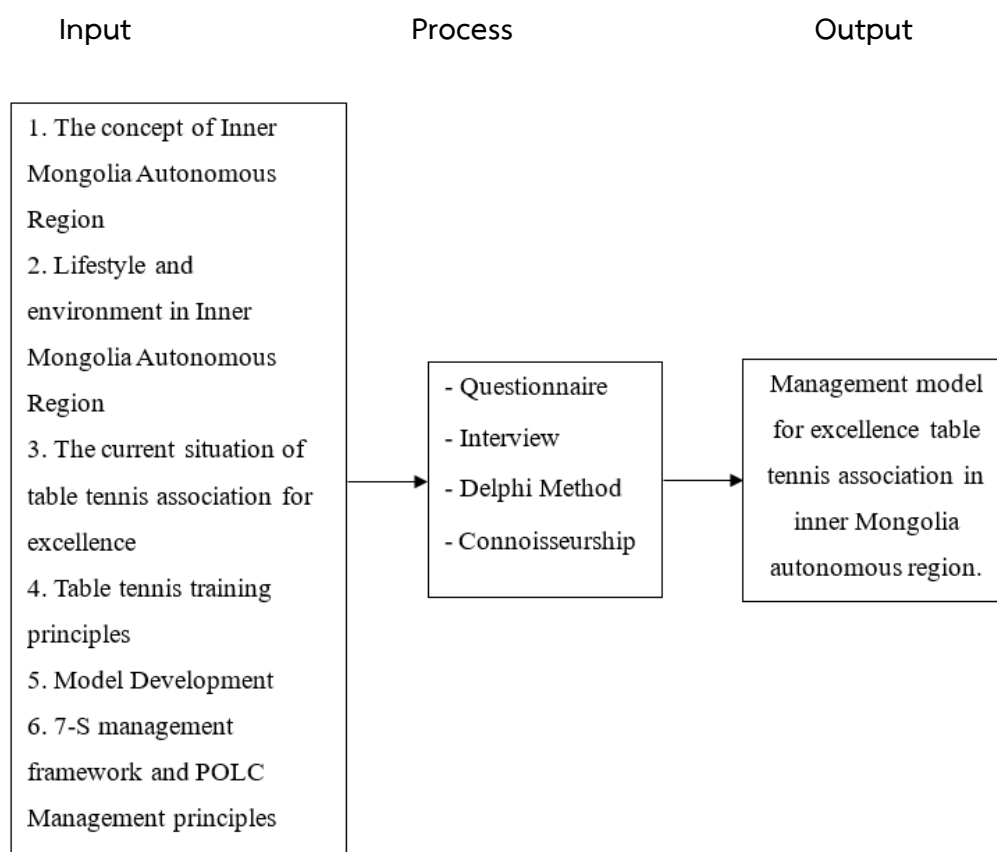


Figure 1 Conceptual Framework

Methodology

Population

There were a total of 11 cities in the Inner Mongolia Autonomous Region with a total of 46 tennis associations. The population of this study was 15,600 table tennis athletes and practitioners in 46 associations.

Samples

According to Taro Yamane's schedule, the researcher will use a total sample size of 390 table tennis athletes and practitioners. The researcher will send questionnaires to the top 2 table tennis associations from each city in the Inner Mongolia Autonomous Region (a total of 22 table tennis associations), with a large number of table tennis associations with 300 or more members.

Research participants

Using the purposive sampling method as follows:

1. 5 experts were used to determine the quality of the questionnaire. (IOC)
2. 9 experts were interviewed to discuss the problems summarized from the questionnaire survey and find ways to create an appropriate management model for the Excellence Table Tennis Association in Inner Mongolia Autonomous Region, including 3 table tennis association directors, 2 sport scientists, 2 table tennis coaches, 1 Sports Psychologist, and 1 table tennis athlete. All experts must have more than 5 years of work or table tennis competition experience.
3. 17 experts for the Modified Delphi method, including 5 table tennis association directors, 3 sport scientists, 3 table tennis coaches, 2 Sports psychologists, 2 table tennis athletes from Highland, and 2 academicians in organizational management Modeling. All experts must have more than 5 years of work or table tennis competition experience.
4. Connoisseurship method using 7 experts, including 2 table tennis association directors, 1 sports scientist, 1 table tennis coach, 1 Sports Psychologist, 1 table tennis athlete from Highland, and 1 academician in organizational management Modeling. All experts must have more than 5 years of work or table tennis competition experience.

Research Instrument

1. Questionnaire for collecting the data: The questionnaire used to survey the current situation of the management model for the Excellence Table Tennis Association in Inner Mongolia Autonomous Region would be designed under the 7-S management framework (Strategy, Structure, Style, Systems, Staff, Skill, and Shared Values), and information on the current problems from the study of related research. The questionnaire would consist of 2 parts: Part 1: Information on the status of the respondents. Part 2: The current situation of the management model of the Excellence Table Tennis Association in the Inner Mongolia Autonomous Region. This part was a 5-level scale question. Before using the questionnaire, it will be tested for validity by 5 experts, and the IOC value will be considered acceptable.

2. In-depth Interviewing form for collecting the data from experts: The interview form to find ways to discuss the problems summarized from the questionnaire survey, and find ways to create an appropriate management model for the Excellence Table Tennis Association in Inner Mongolia Autonomous Region. The interview form was an open-ended question under the question of POLC Management principles that related to the questionnaire survey results. Before implementation, the advisor was consulted on the appropriateness of the questions, and the quality was tested by using experts to check the language usage.

3. Questionnaire for Delphi: The questionnaire in the 3 rounds of the Delphi method would be created under the combination of the 7-S management framework (Strategy, Structure, Style, Systems, Staff, Skills, and Shared Values) and POLC Management principles,

database from the analysis of the current problem from the questionnaires, and the results from the interview analysis. The questionnaire in the first-round Delphi questionnaire would be created by the researcher. In the second-round Delphi questionnaire still be the same format but the results of the median and IQR analysis from 17 experts would be added. In the third round, the Delphi questionnaire would be the result of the scoring from sending the second-round questionnaire to 17 experts to confirm their answers.

4. Evaluation form for connoisseurship: The researcher would use the management model for excellence table tennis association in Inner Mongolia Autonomous Region as an instrument to request advice and evaluation results from 7 experts in the connoisseurship method, which would be a written evaluation content to confirm the management model for excellence table tennis association in Inner Mongolia Autonomous Region.

Data Collection

1. Send 390 questionnaires to 22 table tennis associations in the Inner Mongolia Autonomous Region to collect data about the current situation of the management model for excellence table tennis associations in the Inner Mongolia Autonomous Region.

2. Interview 9 experts were interviewed to discuss the problems summarized from the questionnaire survey and find ways to create an appropriate management model for the Excellence Table Tennis Association in the Inner Mongolia Autonomous Region.

3. The Delphi method by 17 experts to screen and score on various aspects of the draft of the management model for the Excellence Table Tennis Association in the Inner Mongolia Autonomous Region.

4. Connoisseurship by 7 experts to confirm the management model for the excellence table tennis association in the Inner Mongolia Autonomous Region.

Data Analysis

1. The validity analysis method employs the Indexes of Items of Objective Congruence (IOC ≥ 0.6).

2. Use computer analysis software to collect and organize the data obtained from the questionnaire. ($\bar{x}$, SD). The criteria for the 5-level evaluation scale (Best, John W, 1977) of Part 2 are as follows:

- An average score of 4.51 to 5.00 indicates the Highest
- An average score of 3.51 to 4.50 indicates a High
- An average score of 2.51 to 3.50 indicates a Medium
- An average score of 1.51 to 2.50 indicates a Low
- An average score of 1.00 to 1.50 indicates the lowest

3. Content analysis for the interview method and the Connoisseurship method

4. Use the software package to analyze the data. (Median ≥ 3.50 and IQR. ≤ 1.50)

Results

1. The 390 respondents' majority of whom were male (72.82%), indicating that the survey had primarily targeted table tennis players and trainees, who tended to be men. In terms of age, the largest group fell within the early working-age bracket (21–25 years), accounting for 39.23% of respondents. Regarding educational attainment, nearly equal proportions held bachelor's degrees (56.41% when combining undergraduate and bachelor categories). In terms of playing level, the highest-skilled group (Level 1) represented 36.41% of respondents. Finally, in assessing training duration, those who had trained for more than four years formed the largest segment (42.82%). Overall, the data reflected that the sample was predominantly composed of young adult men with high educational backgrounds and extensive table tennis training experience.

2. After the researcher surveyed using a questionnaire to understand the current situation of the management model for the excellence table tennis association in the Inner Mongolia autonomous region. It was found that the average level of 6 elements of Strategy, Structure, Style, Staff, Skills, and Shared Values was high ($\bar{X} \geq 3.60$). But the element of Systems has a moderate level ($\bar{X} = 3.39$).

For each element, there will be a current situation with a high or very high average level, as well, divided into strategy elements; there were 6 high-value problems. On the structure element, there were 5 very high-value problems. On the style element, there was 1 very high-value problem. On the systems element, there was 1 very high-value problem. On the staff element, there were 4 very high-value problems. On the skills element, there were 3 very high-value problems. And on the share value element, there were a total of 2 high-value problems.

These results suggest that, while the Association excels in most areas of internal alignment and capability, its operational systems warrant further enhancement to achieve uniformly high performance across all seven dimensions.

3. The management model for the Excellence Table Tennis Association in Inner Mongolia Autonomous Region under the 7s management framework.

Table 1 The management model for the excellence table tennis association in Inner Mongolia Autonomous Region under the 7S management framework.

NO	Content
Strategy	
1	Publish a clear vision “To become national champions with superior high-altitude adaptability” in all annual plans and coaching manuals.



NO	Content
2	Define quantitative KPIs for regional win rates (e.g. +15% in one year) and post-altitude recovery times (e.g., –15% oxygen debt).
3	Convene a High-Altitude Strategy Committee quarterly to adjust these KPIs against wind, temperature, and survey-identified risk factors.
4	Allocate an “Innovation Fund” for pilot high-altitude training techniques, equipment, and VR simulations of Gobi Desert winds.
5	Host biannual strategy hackathons with coaches, scientists, and athletes, drawing on tribal communal wisdom.
6	Integrate AI-driven scenario planning to model budget cuts’ effects on altitude training goals.
7	Run monthly competitor-and-market intelligence briefings via digital dashboards.
8	Publish an annual “Strategy in Action” report linking budgets to altitude-adaptation outcomes.
9	Benchmark against other national high-altitude sports programs and share best practices.
10	Embed resource-alignment checkpoints (start, mid, end) in every project plan.
11	Create a “lessons-learned” repository for strategic initiatives that underperform.
12	Rotate the chair of the Strategy Committee among provincial directors to ensure broad ownership.
13	Include community-sourced ideas (via QR feedback in Gers) in each strategic refresh.
14	Host one external-stakeholder workshop per year (sponsors, sports authorities) to align support.
15	Tie 10% of senior-leadership bonuses to the achievement of altitude-specific strategic targets.
Structure	
1	Formalize a “High-Altitude Operations Unit” in the org chart, reporting to both Strategy and Coaching Directors.
2	Define clear role-charts for coaches, scientists, and medical staff at the 2,800 m Field Lab.
3	Set up dual-reporting lines for major altitude projects (functional & strategy oversight).
4	Standardize delegation protocols with documented decision-rights for every level.



NO	Content
5	Conduct quarterly structural reviews to adjust teams against survey-identified coordination gaps.
6	Implement a digital org-chart portal with real-time updates.
7	Hold monthly “coffee-corner” gatherings to balance formal/informal networks.
8	Create succession-planning maps for all critical roles, updated annually.
9	Rotate leadership in each working group to spread expertise.
10	Map and publish interdependency matrices (logistics ↔ coaching ↔ science).
11	Form a semi-annual advisory board of directors, scientists, and top athletes.
12	Align budget-allocation meetings with proposed structural changes.
13	Provide VR-based org-chart walk-throughs for new hires.
14	Publish a “Structure Effectiveness Scorecard” annually (clarity, flexibility, coordination).
Style	
1	Hold monthly two-way feedback forums across coaches, scientists, and athletes.
2	Train leaders in high-altitude motivational techniques and constructive feedback.
3	Implement a documented “Idea Pipeline” with formal responses.
4	Publish guidelines for timing, tone, and format of feedback.
5	Rotate leadership roles on key initiatives annually.
6	Schedule weekly “open-door hours” for informal drop-ins.
7	Host quarterly “Innovation Jams” to crowdsource altitude-adapted drills.
8	Share follow-up evaluations of change-management initiatives transparently.
9	Encourage peer recognition via a digital “Kudos Board.”
10	Discuss failures as learning opportunities in the monthly all-hands.
11	Use VR simulations in leadership development to rehearse altitude scenarios.
12	Institute psychological safety protocols in team meetings.
13	Link leadership-development programs to altitude-specific challenges.
14	Highlight style exemplars each quarter.
15	Include body language and sports psychology modules in leadership training.
Systems	



NO	Content
1	Deploy a unified digital platform logging daily training, competition results, and real-time HR/SpO ₂ .
2	Integrate elevation-adjusted performance metrics on all dashboards.
3	Use AI to recommend load adjustments based on biometric signals.
4	Standardize SOPs for high-altitude acclimatization with mandatory sign-offs.
5	Automate registration and facility scheduling with altitude-priority codes.
6	Launch a real-time feedback app for coaches and athletes to report stress and notes.
7	Open a continuous-improvement channel where users propose system tweaks.
8	Archive data securely in the cloud, with role-based access controls.
9	Run quarterly “systems sprints” to identify and resolve process bottlenecks.
10	Offer AI-driven “what-if” scenario tools for resource reallocation.
11	Develop a mobile app for on-site medical and nutrition updates.
12	Implement SMS/WeChat alerts for urgent schedule or weather changes.
13	Conduct biannual UX reviews with coaches, athletes, and staff.
14	Display system-performance KPIs (uptime, error rates) on a shared operations dashboard.
Staff	
1	Form specialized support teams (physicians, nutritionists, physiologists, psychologists) dedicated to altitude adaptation.
2	Embed altitude-adaptation competencies in all job descriptions.
3	Launch a continuous mentor-mentee program pairing veterans with new staff.
4	Conduct biannual staff-satisfaction pulses with 30-day follow-up.
5	Define clear career-progression pathways with altitude-skill milestones.
6	Track turnover causes and adjust staffing strategies accordingly.
7	Dynamically allocate staff based on seasonal altitude cycles.
8	Provide cross-training rotations among coaching, science, and logistics.
9	Include department-rotation assignments in development plans.
10	Certify all relevant staff as “Altitude-Adaptation Experts” annually.
11	Use workload dashboards to flag overload and rebalance tasks.
12	Convene quarterly talent-review boards for high-potential identification.



NO	Content
13	Share staff-development KPIs (certifications, training hours).
14	Launch a digital staff portal for real-time access to resources.
Skills	
1	Offer high-altitude coaching certification covering physiology and tactics.
2	Run strategic-planning workshops for the entire staff.
3	Host quarterly sports analytics bootcamps.
4	Develop VR modules for altitude-training design and monitoring.
5	Organize hackathons around altitude training challenges.
6	Mandate project-management training for program leads with altitude case studies.
7	Facilitate teamwork sprints, mixing roles and experience levels.
8	Ensure continuous access to e-learning in digital literacy and emerging tech.
9	Form mentoring circles to reinforce altitude-specific techniques.
10	Create a “Skills Marketplace” for trading expertise in altitude topics.
11	Conduct annual skill-gap analyses and tailor training roadmaps.
12	Run emergency-scenario drills (e.g., acute mountain sickness) quarterly.
13	Invite external experts (e.g., chamber oxygen therapy, biomechanics) twice yearly.
14	Integrate sports-psychology and mindfulness into all coach and athlete curricula.
15	Track skill-development metrics (certifications, course completions, performance gains).
Share Value	
1	Codify core values—Resilience, Collaboration, Innovation—into all internal communications.
2	Stage an annual high-altitude, inter-tribal team-building retreat.
3	Embed values micro-prompts in the digital platform (e.g., values quizzes).
4	Recognize and reward members who exemplify shared values, especially in altitude training.
5	Publish monthly “Values Stories” featuring real examples in the newsletter.
6	Host quarterly “Values Town Halls” to co-create improvement pledges.
7	Align CSR projects (e.g., youth clinics) with core values.
8	Reinforce values on multiple channels (WeChat, bulletin boards, team meetings).

NO	Content
9	Measure values uptake in biennial surveys.
10	Appoint “Values Champions” in each district.
11	Tie performance bonuses to demonstrated values alignment.
12	Introduce a “Values Wallet” badge system for values-aligned activities.
13	Link coach certification and athlete orientation to shared values discussions.
14	Map shared values to the provincial sports policy.
15	Open an online forum for proposing new rituals or traditions.

From Table 1, it can be seen that the final draft of management model for excellence table tennis association in inner Mongolia autonomous region that the researcher has drawn up under the 7s management framework, all 7 elements, total 102 items, divided into 15 items on strategy element, 14 items on structure element, 15 items on style element, 14 items on systems element, 14 items on staff element, 15 items on skills element, and 15 items on share value element.

4. The management model for the Excellence Table Tennis Association in Inner Mongolia Autonomous Region under the POLC management principles.

Table 2 The management model for excellence, table tennis association in Inner Mongolia Autonomous Region under the POLC Management principle.

NO	Content
Planning	
1	Translate the 7-S “Strategy” insights into an annual master plan with high-altitude goals and KPIs.
2	Map a bi-seasonal periodization calendar aligned with regional climate cycles.
3	Specify digital-platform requirements (training logs, altitude metrics, AI analytics).
4	Design the “Mongolian Altitude Mindset” mental-training syllabus.
5	Allocate budgets and the “Innovation Fund” for pilot altitude programs.
6	Convene quarterly strategy hackathons to refine plans with tribal wisdom.
7	Build risk-assessment templates for altitude performance factors.
8	Draft Field-Lab protocols in partnership with local universities.
9	Set cross-functional planning teams of Strategy, Systems, and Staff leads.



NO

Content

- 10 Schedule annual deep-dive SWOT reviews, including tribal-culture dimensions.
- 11 Align plan milestones with the “High-Altitude Open” tournament and retreats.
- 12 Incorporate coach-and-athlete digital feedback loops into plan updates.
- 13 Host external-stakeholder planning workshops annually.
- 14 Publish a planning scorecard linking objectives to survey and expert insights.

Organizing

- 1 Charter a High-Altitude Strategy Committee with clear Terms of Reference.
- 2 Form the High-Altitude Operations Unit with defined role descriptions.
- 3 Establish the 2,800 m Field Lab under a joint university partnership.
- 4 Create cross-functional pods (IT, coaching, science) with explicit reporting lines.
- 5 Implement mentor-mentee matching for all coaching staff.
- 6 Launch a 24-district coaching network with rotating coordinators.
- 7 Automate staff scheduling aligned to seasonal training cycles.
- 8 Deploy a cloud-based org-chart portal with dual-reporting displays.
- 9 Plan “Values Champions” and “Style Exemplars” assignments each quarter.
- 10 Map departmental interdependencies and assign liaison officers.
- 11 Maintain a public succession-plan dashboard for key roles.
- 12 Align resource-allocation meetings with organizational changes.
- 13 Schedule biannual talent-review boards and skill-gap analyses.
- 14 Host a semi-annual advisory board meeting with external experts.

Leading

- 1 Run monthly town-hall rotations across districts and Gers.
- 2 Deliver leadership development in high-altitude communication and feedback.
- 3 Facilitate quarterly “Innovation Jams” on altitude drill design.
- 4 Conduct body language and sports psychology workshops for all staff.
- 5 Implement VR-based leadership simulations of extreme conditions.
- 6 Mandate “open-door hours” in each leader’s calendar.
- 7 Rotate leadership roles in key altitude projects annually.
- 8 Launch a digital Kudos Board for peer recognition.





NO	Content
9	Embed mindfulness breaks into daily training schedules.
10	Publish style-exemplar profiles each quarter.
11	Facilitate two-way feedback sessions after major events and plan adaptations.
12	Use QR-code kiosks in Gers for instant event feedback.
13	Host inter-tribal retreats that blend competition and communal rituals.
14	Train leaders to apply constructive feedback guidelines consistently.
15	Incorporate values and style metrics in leadership performance reviews.
Controlling	
1	Maintain real-time KPI dashboards for SpO ₂ , platform-uptime, and Recovery Index ≥80%.
2	Trigger automated alerts when metrics fall below thresholds.
3	Conduct monthly stress-and-satisfaction surveys via the digital portal.
4	Perform quarterly culture-alignment audits against core values.
5	Publish comparative club-performance reports each season.
6	Convene post-quarter “lessons-learned” reviews with multi-disciplinary teams.
7	Audit the Field Lab’s adherence to SOPs and emergency protocols quarterly.
8	Measure training-platform uptime and error rates weekly.
9	Monitor mentor-mentee engagement and outcomes via dashboards.
10	Track coach-network participation and tribal-technique exchanges each quarter.
11	Review VR-simulation usage and effectiveness biannually.
12	Report on staff-development KPIs (certifications, training hours) monthly.
13	Evaluate leadership style metrics (feedback volume, innovation proposals) quarterly.
14	Update control protocols based on biannual SWOT and expert feedback.
15	Publish an annual “Control Excellence” report linking controls to survey and interview data.

From Table 2, the final draft of the management model for the excellence table tennis association in Inner Mongolia Autonomous Region that the researcher has drawn up under the POLC Management principles, all 4 elements, a total of 58 items, divided into 14 items on the planning element, 14 items on the organizing element, 15 items on the leading element, and 15 items on the controlling element.

5. Based on the insights from 7 experts to confirm the management model for the excellence table tennis association in the Inner Mongolia autonomous region, under the 7S theory and POLC Management framework, using the Delphi data collection method, reached consensus and agreed on the elements of the management model.

Discussion

On the strategy element, the model's emphasis on a crystal-clear, altitude-adapted vision ("national champions with high-altitude resilience") and quarterly High-Altitude Strategy Committee reviews speak directly to Inner Mongolia's extreme terrain and climate. With over 50% of the region lying above 1,500 m and average elevations of 1,500 m–3,200 m (Wang Yehui, 2017; Ma Jinping, 2024), wind, temperature swings, and hypoxic risk are constant. Embedding community QR feedback and tribal hackathons leverages the region's communal spirit to refine KPIs in real time—critical when even "ideal" training altitudes of 2,000–2,500 m (Zhang Wei, 2004) can induce altitude sickness without vigilant risk monitoring.

On the systems element, the Delphi-refined focus on a single, AI-driven digital platform for training logs, competition scheduling, and real-time HR/SpO₂ monitoring addresses both the moderate Systems score (3.39 ± 1.03) and the region's technical gaps. In place of complex cross-system APIs, you build secure cloud archives and SMS/WeChat alerts—pragmatic given the limited IT infrastructure in many Mongolian counties. This foundation readies the association for future integration once data security and privacy concerns (Lu et al., 2019) have been ironed out.

On staff element, specialized support teams—pairing sports physicians, nutritionists, exercise physiologists, and psychologists—directly respond to highland health challenges such as hypoxia, hyperuricemia, and hypertension (Yan et al., 2023; Zhang et al., 2023). Embedding altitude-adaptation competencies in job descriptions and running biannual satisfaction pulses (with rapid 30-day follow-up) ensures that staffing remains both expert-led and resilient—a critical success factor in other provincial sports models (Hongsaenyatham, 2009).

On the skills element, the suite of altitude-specific certifications, VR design modules, emergency mountain-sickness drills, and mindfulness training acknowledges the cognitive and emotional strains of hypoxia (Lai et al., 2015; Niu et al., 2019). By combining high-altitude coaching workshops with crisis-scenario simulations, the association cultivates not only technical prowess but also the psychological resilience shown to distinguish world-class athletes (Armstrong, 2007) and effective university sports planners (Kriemadis, 2011).

On the shared value element, codifying "Resilience–Collaboration–Innovation" and celebrating them via Values Town Halls, a "Values Wallet" badge system, and CSR youth clinics ensures that the association's ethos resonates both in urban centers and remote Gers.

This shared-values framework mirrors successful models in China's post-Olympic sports reforms (Hu et al, 2005) and supports sustainable growth by aligning community identity with strategic objectives.

On the planning element, by mapping a bi-seasonal periodization calendar—endurance blocks on 2,500–3,000 m grasslands in July–August and speed/agility blocks on lower plains in October–November—the model aligns training with the region's climate cycles and the “ideal” hypoxic stimulation range of 2,000–2,500 m (Zhang Wei, 2004). The “Mongolian Altitude Mindset” syllabus and innovation-fund allocation ensure that both physical and psychological adaptation are anticipated, addressing cognitive impairments documented under acute and chronic hypoxia (Lai et al., 2015; Niu et al., 2019).

On the organizing element, establish the operational backbone needed for high-altitude excellence. Chartering a High-Altitude Strategy Committee and forming a 2,800 m Field Lab with clear Terms of Reference embeds research and decision-making in the very terrain where altitude sickness and physiological stress emerge (Ma Jinping, 2024).

On the leading element, leadership practices center on inclusive, culturally resonant engagement. Monthly town-hall rotations through Gers (traditional Mongolian tents) and QR-code feedback kiosks bridge the urban–rural divide and leverage community spirit. Innovation Jams and VR-based leadership simulations prepare staff to anticipate and adapt to extreme wind, temperature swings, and physiological crises—scenarios akin to acute mountain sickness drills. Embedding mindfulness breaks and recognizing style-exemplars each quarter address the emotional volatility documented among high-altitude residents (Lu et al., 2019), fostering a resilient, motivated leadership cadre.

On the controlling element, control mechanisms provide the rigorous oversight essential in unpredictable environments. Real-time KPI dashboards monitor SpO₂ thresholds, platform uptime, and Recovery Index $\geq 80\%$, triggering automated alerts when metrics dip. Monthly stress-and-satisfaction surveys and quarterly culture-alignment audits ensure that both physical welfare and shared values remain on track.

From the content of all 11 elements of the draft of the management model for the Excellence Table Tennis Association in Inner Mongolia Autonomous Region. The researcher has created a model as shown in the figure below.

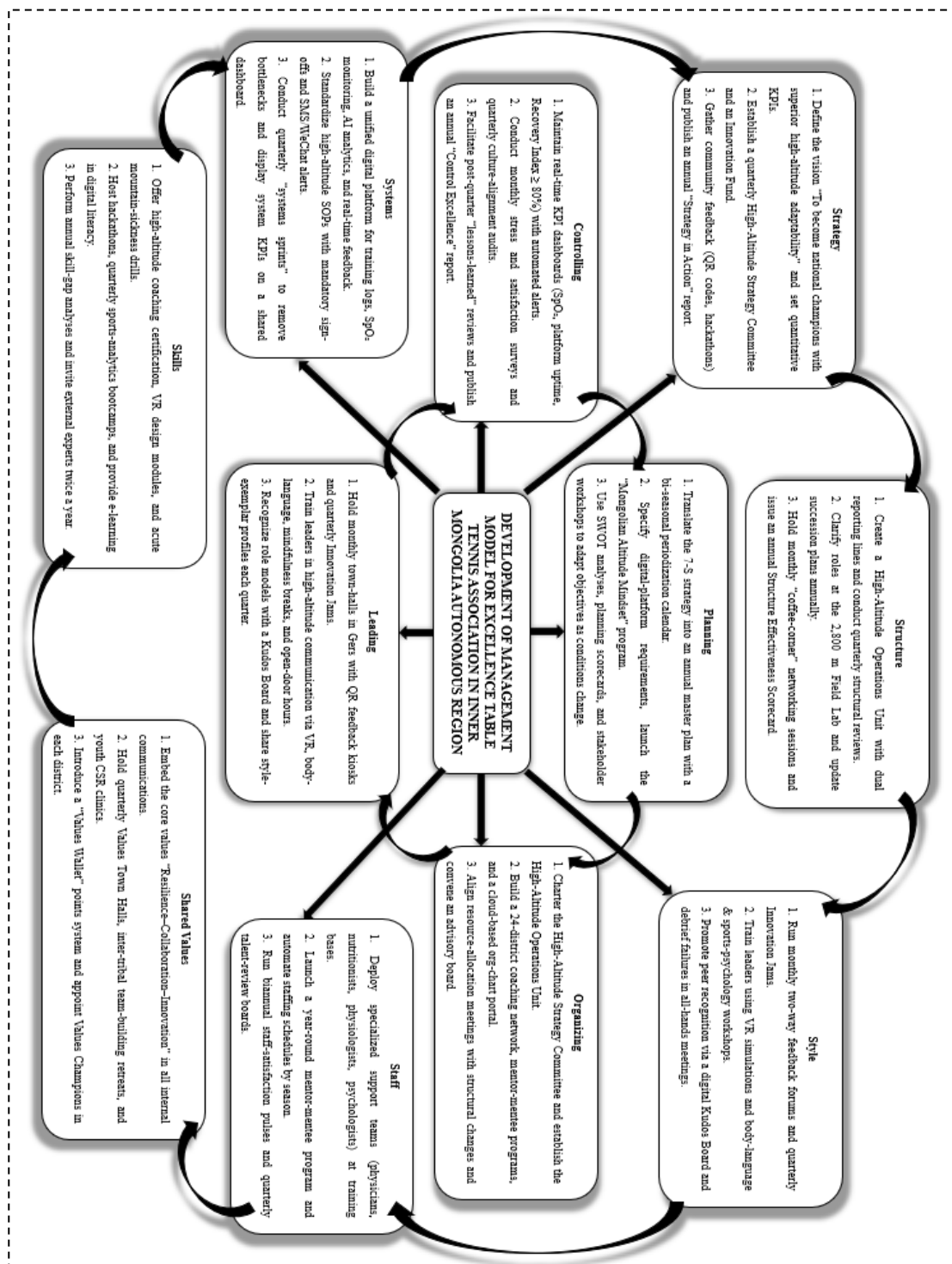


Figure 2 Management model for excellence table tennis association in the inner Mongolia autonomous region.

Recommendation

1. Establish one site at $\geq 2,200$ m; capture SpO₂/HR/Recovery Index; run monthly AMS SOP drills. KPIs: data completeness $\geq 90\%$; AMS < 2 per 1,000 training hours; data-to-decision latency ≤ 48 hours.
2. Log training–RPE–wellness–coach notes–weather alerts; enforce role-based access, consent, weekly backups. KPIs: uptime $\geq 99.5\%$; error $< 1\%$; resolve support tickets ≤ 7 days.
3. Mongolian Altitude Mindset: 10-min breath-control + 5-min mindfulness pre-warm-up; brief mood/anxiety screen before intense blocks. KPIs: adherence $\geq 85\%$; stress $\geq 15\%$ by week 8; improved coach-rated focus.
4. Elevation- and season-based periodization: Jul–Aug (2,500–3,000 m): endurance + technical stability; Oct–Nov ($\leq 1,500$ m): speed/agility + serve/receive under fatigue. KPIs: win-rate +10–15% YoY; time-to-SpO₂ baseline -15% .
5. Weekly altitude huddle (30 min): Coach, physio, sport scientist, psychologist review red/yellow flags, micro-adjust plans, note equipment (e.g., rubbers/balls in low humidity). KPIs: $\geq 90\%$ huddle completion; flagged issues closed ≤ 7 days.
6. Altitude-specific staffing competencies: Add “Altitude-Adaptation” to JDs; annual certification for coaches/medical staff. KPIs: $\geq 90\%$ certified; critical-role retention $\geq 85\%$.
7. Community & stakeholder engagement: Quarterly town halls (in-person + WeChat), sponsor/authority roundtables, youth CSR clinics. KPIs: stakeholder satisfaction $\geq 4.0/5$; ≥ 2 partnership initiatives/year.
8. Dashboard-driven control & reviews: Track win rate/podiums, SpO₂/Recovery Index, injury-days, platform uptime, training load. Hold monthly reviews and quarterly lessons learned. KPIs: $\geq 80\%$ action items closed by next cycle.

Recommendation for Future Research

1. 12–18-month altitude cohort comparison: Teams at 2,400–2,800 m vs $\leq 1,500$ m; outcomes: win rate, Recovery Index, time-to-SpO₂ baseline, injury-days; analyze with mixed-effects models (pre-registered).
2. Stepped-wedge rollout of the digital platform: Stagger adoption to enable within-club before/after comparison; collect usability, governance, and cost data alongside performance endpoints.
3. Psychological mechanisms under hypoxia: Measure stress, motivation, attentional control with brief validated scales and VR acute-hypoxia tasks; link to error rates in match-simulation drills.
4. ROI and cost-effectiveness: Association/sponsor perspective; compute ICER per additional podium and per injury-day avoided; sensitivity analyses (bandwidth, device lifespan, staffing).

5. Expand Delphi panel (≥ 30): Add local highland experts and regional association leaders; test stability of Median/IQR consensus thresholds.
6. Multi-region replication: Replicate in Qinghai/Tibet or similar highlands; document cultural/logistical adaptations.
7. Structural modeling (SEM): Test POLC as a mediator between 7S $\rightarrow$ Excellence and altitude level as a moderator on Systems/Staff/Skills paths.
8. Qualitative follow-ups on non-adopted items: Thematically analyze resistance drivers (workload, digital literacy) to refine change-management guidance.

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