CAUSAL MODEL OF FACTORS INFLUENCING THE COMPETITIVE ADVANTAGE OF SECONDARY SCHOOL UNDER THE OFFICE OF THE BASIC EDUCATION COMMISSION

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Abstract

This research aimed to 1) study the level of organizational knowledge management factors, business strategies, educational administration innovation, and competitive advantage of secondary schools under the Office of the Basic Education Commission; 2) develop and examine the consistency of a causal model of factors influencing the competitive advantage of secondary schools under the Office of the Basic Education Commission; and 3) make policy recommendations to enhance the competitive advantage of secondary schools under the Office of the Basic Education Commission. The research was divided into two phases: Phase 1: involved testing the consistency of the proposed model with empirical data, and Phase 2: focused on making policy recommendations. The sample consisted of 340 school administrators in the 2024 academic year. A multi-stage random sampling technique was used. The tool used was a 5-point Likert rating scale questionnaire. Data were analyzed by basic statistics and structural equation modeling. The results of the research found that 1) the causal factors of competitive advantage of secondary schools consisted of organizational knowledge, management factors, business strategies, Educational Administration Innovation 2) The developed model is consistent with empirical data (Chi-Square = 53.950 df = 45 P-value = 0.169 RMSEA = 0.024) and 3) Policy proposals to enhance the competitive advantage of secondary schools include the following: 1) Educational administrators must be flexible and able to move in the current era, have vision, and be international. 2) There is a system for driving AI technology, human resource management, teacher and personnel innovation. 3) Data validation system. 4) Network cooperation.

Keywords : Competitive advantage, high school, causal model

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Introduction

Globalization and rapid global change are occurring in both science and technology. Advances in information technology are impacting countries and their competitiveness on the global stage. Countries that will survive or maintain their competitive edge are those with the power of knowledge and are knowledge-based societies. In a borderless world, more foreigners will be coming to live and work in Thailand while Thais will have more opportunities to live and work abroad. The 20-Year National Strategy (2017-2036) aims to drive Thailand toward stability, prosperity, and sustainability. This will enhance the country's competitiveness, particularly in the strategic area of building competitiveness. Educational institutions need to implement sound quality management. Quality management leads to competitiveness or a competitive advantage. School administrators must manage their institutions responsibly to achieve excellence.

The International Institute for Management Development (IMD) is an educational institution specializing in business administration. The IMD World Competitiveness Center, an international organization, has published annual reports on the competitiveness of various countries in the World Competitiveness Yearbook (WCY) since 1989. However, regarding Thailand's educational competitiveness, the IMD World Competitiveness Ranking report indicates that Thailand's overall educational competitiveness compared to other countries is ranked 25th out of 63. As of 2024, the results of the International Student Assessment (PISA) assessment show that Thailand needs improvement. Facing rapid and drastic economic, social, and political changes, particularly changes in information technology, which have created intense competition, organizations and agencies are striving to find the best strategies. Therefore, innovation and development are necessary. Quality management is a popular modern management technique because it enables organizations and agencies to continuously and endlessly build competitive advantages.

The most important factor for a competitive advantage in an educational institution is the development of talented individuals. This creates a new and increasingly high demand for the development and efficient management of organizational knowledge. A study of research related to management innovation and competitive

advantage found that the findings of this study on the role of management innovation in competitive advantage align with the research of Nouri et al. (2016). The findings are consistent with and support the idea that management innovation contributes to competitive advantage. Business strategy, namely, the ability to innovate, significantly impacts sustainable competitive advantage. Fariz (2024) studied research on enhancing the competitive advantage of higher education institutions through the implementation of knowledge management and information technology. The results showed that knowledge management and knowledge management processes significantly impact competitive advantage.

For these reasons, in order for educational institutions under the Office of the Basic Education Commission to transform their organizations and become highly competitive, administrators must prioritize various factors affecting competitive advantage. Therefore, the researcher is interested in conducting a causal model of factors influencing the competitive advantage of secondary schools under the Office of the Basic Education Commission. This research will lead to a better understanding of the factors and processes involved in developing highly competitive schools and provide guidelines for educational administration in secondary schools under the Office of the Basic Education Commission for administrators and teachers to develop and achieve the goal of enhancing the competitive advantage of secondary schools under the Office of the Basic Education Commission.

Research Objectives

1. To study the level of organizational knowledge management factors, business strategies, educational administration innovation, and the competitive advantage of secondary schools under the Office of the Basic Education Commission.

2. To develop and examine the consistency of a causal model of factors influencing the competitive advantage of secondary schools under the Office of the Basic Education Commission.

3. To develop policy recommendations to enhance the competitive advantage of secondary schools under the Office of the Basic Education Commission.

Research Conceptual Framework

For this study, entitled "Causal Model of Factors Influencing the Competitive Advantage of Secondary Schools under the Office of the Basic Education Commission," the researchers developed a hypothetical model of the causal relationships influencing the competitive advantage of secondary schools under the Office of the Basic Education Commission as follows:

Factors Directly and Indirectly Influencing Competitive Advantage. The researchers studied theoretical concepts and the research results of Ni Wayan Sitiari (2024), Fariz (2024), Sundusiah Sundusiah (2021), Feti Fatonah (2023), Bina Nusantara (2016), Elistia Elistia (2025), Firman (2024), Elkana Timotius (2023), Putra Pratama (2025) and David (2023), Arnis Budi Susanto (2016), Xin Liu (2025), Sasinipa Srikalyaniwat (2022), Anuwat Songsom (2019), Chen and Wu (2015), Mohd (2012), and Suliyanto & Rahab (2012). The researchers have considered and selected the influence of factors affecting competitive advantage, consisting of 1) business strategy 2) educational innovation and 3) organizational knowledge management.

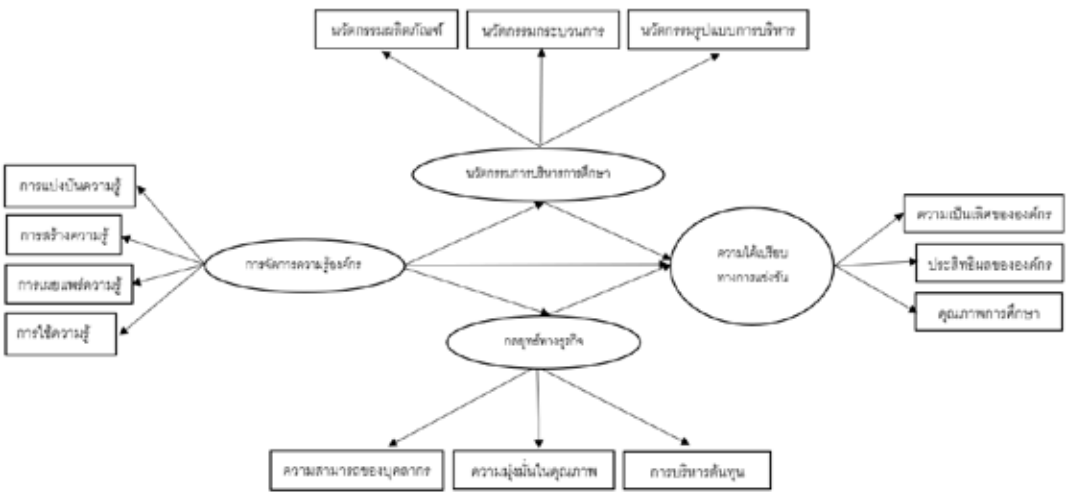


Figure 1. Research conceptual framework

Research Methodology

Phase 1 of this research investigated the organizational knowledge management factors, business strategy factors, educational innovation factors, and the competitive advantage of secondary schools under the Office of the Basic Education Commission. The study also examined the consistency of the causal model of factors influencing the competitive advantage of secondary schools under the Office of the Basic Education Commission.

Population

The population for this quantitative research, "Causal Model of Factors Influencing the Competitive Advantage of Secondary Schools under the Office of the Basic Education Commission," consisted of 1,025 administrators from 215 high-competitive secondary schools under the Office of the Basic Education Commission (Office of Basic Education Policy and Planning, Office of the Basic Education Commission, 2024).

Sample

The sample used in this research consisted of administrators from high-competitive secondary schools under the Office of the Basic Education Commission in the 2024 academic year. Using the sample size table provided by Krejcie and Morgan, the sample consisted of 340 students selected through simple random sampling, proportional to the number of administrators in each high-competitive secondary school. A multi-stage sampling method was used.

Quantitative Research Instruments

The research instrument used in this phase of the causal model of factors influencing the competitive advantage of secondary schools under the Office of the Basic Education Commission was a questionnaire. The researcher conducted the following:

1. Developed a quantitative research instrument using a questionnaire containing questions about the four latent variables within the research framework. The questions were based on the definitions of the variables, as follows:

Section 1: Respondents' basic information, including gender, age, educational qualifications, and experience.

Section 2: Opinions on the competitive advantage of educational institutions, comprising three components: 1) Organizational excellence, 2) Organizational effectiveness, and 3) Educational quality.

Section 3: Opinions on educational administration innovation, comprising three components: 1) Product innovation, 2) Process innovation, and 3) Management model innovation.

Section 4: Opinions on business strategy, comprising three components: 1) Personnel capabilities, 2) Quality commitment, and 3) Cost management.

Section 5: Opinions on organizational knowledge management, comprising four components: 1) Knowledge sharing, 2) Knowledge creation, 3) Knowledge dissemination, and 4) Knowledge utilization.

Data collection

For quantitative data collection, the researcher followed the following steps and methods:

1. The researcher collected empirical data by requesting permission from the Graduate School, Srinakharinwirot University, to complete the data collection.

2. The researcher sent the request letter and questionnaires to the sample groups by mail to the sample schools, enclosed with a stamped envelope. The questionnaires were then returned by mail, or the sample schools were contacted to send the questionnaires via a link and collect data via Google Forms.

3. The researcher verified the completeness and accuracy of all received questionnaires before analyzing the results.

4. The researcher analyzed the completed questionnaires.

Data Analysis

For quantitative data analysis, a significance level or acceptable level of error (α = .05) was established. The analysis involved various statistical methods and methods. The researcher analyzed the mean ($\bar{x}$), standard deviation (SD), skewness, and kurtosis of the individual data using a ready-made program. Confirmatory factor analysis was performed on the observed variables, including the direct, indirect, and overall influences on each variable. and the Harmony Index.

Phase 2 of the research involves developing policy recommendations to enhance the competitive advantage of secondary schools under the Office of the Basic Education Commission.

Informant Group

A focus group discussion with nine experts to propose policy proposals to enhance the competitive advantage of secondary schools under the Office of the Basic Education Commission was organised.

The key informants included nine experts, including academics, administrators, and educational administration specialists, who participated in focus group discussions to acquire diverse perspectives on the study. Methodological triangulation enhanced the validity of the research. The participants were selected using purposive sampling based on the following criteria:

1) Three academics with knowledge and expertise in educational administration and experience or participation in educational policy formulation.

2) Three educational administrators with experience and expertise in educational administration and experience or participation in educational policy formulation.

3) Three educational institution administrators with expertise in educational administration and who have held the position for at least five years.

Development of Research Instruments

Qualitative Research Instruments: this research utilized focus group discussions with a designated group of informants to build on the quantitative research findings. The focus group discussion focused on recommendations for developing factors influencing the competitive advantage of secondary schools. The methodology was as follows:

1) Conduct focus group discussions on the desired factors in each topic.

2) Develop a draft list of questions for each topic.

3) The instrument was reviewed by the thesis advisor and revised based on suggestions.

4) Data collection was used to collect data from the focus group discussions.

Data Collection

The researcher utilized the focus group discussion method to gather information based on the actual work experiences of administrators, academics, and experts. The following methods were used:

1) The researcher wrote to the Graduate School, Srinakharinwirot University, requesting assistance from key informants.

2) The researcher contacted key informants to schedule a date, time, and location for the focus group discussion.

3) The researcher conducted the focus group discussions using recorded discussions with key informants and audio-visual recording.

4) Data were collected from informants to analyze, distinguish, and identify key issues to ensure that the data comply with qualitative research methods.

Data Analysis

Data were analyzed using content analysis. Data obtained from focus group discussions were examined for completeness and consistency across the desired topics. Data reliability was then verified using triangulation techniques, which involved comparing and observing relationships between the data. The results demonstrated accuracy, correlation, and consistency. The researchers then presented the qualitative research findings in a descriptive format (Chai Phothisita, 2013). The results were summarized as policy recommendations to enhance the competitive advantage of secondary schools under the Office of the Basic Education Commission.

Results

The researchers examined the assumptions of the variables before conducting structural equation modeling (SEM) to test the hypotheses based on the following research objectives:

1) Variable Distribution Analysis

The researchers examined the distribution of the variables to determine whether they were normal. The skewness and kurtosis values of all variables were considered as shown in Table 1.

Table 1 : *Mean, standard deviation, skewness, and kurtosis of all variables.*

variable	$\bar{X}$	Interpretation	S.D.	Sk	Ku	Variance
Competitive advantages of educational institutions	**4.44**	**substantially**	**0.510**	**-1.684**	**6.756**	**0.260**
Organizational Excellence	4.44	substantially	0.549	-1.568	5.106	0.301
Organizational effectiveness	4.43	substantially	0.543	-1.506	5.102	0.295
Educational quality	4.45	substantially	0.534	-1.561	5.600	0.285
Educational Administration Innovation Factors	**4.44**	**substantially**	**0.521**	**-1.666**	**6.331**	**0.271**
Product Innovation	4.44	substantially	0.540	-1.557	5.362	0.291
Process Innovation	4.44	substantially	0.551	-1.504	4.879	0.303
Management Model Innovation	4.45	substantially	0.552	-1.595	5.166	0.304
Business Strategy Factors	**4.45**	**substantially**	**0.537**	**-1.798**	**6.307**	**0.289**
Human Resources	4.45	substantially	0.553	-1.652	5.209	0.306
Commitment to Quality	4.44	substantially	0.575	-1.660	5.024	0.330
Cost Management	4.45	substantially	0.555	-1.630	5.599	0.308
Organizational Knowledge Management Factors	**4.45**	**substantially**	**0.557**	**-2.130**	**8.868**	**0.310**
Knowledge Sharing	4.45	substantially	0.593	-2.103	7.660	0.351

variable	$\bar{X}$	Interpretation	S.D.	Sk	Ku	Variance
Knowledge Creation	4.44	substantially	0.577	-1.911	7.437	0.333
Knowledge Dissemination	4.45	substantially	0.578	-1.948	7.455	0.334
Knowledge Utilization	4.46	substantially	0.586	-1.927	7.081	0.343

The analysis of the variables used in the research revealed that most had high scores. The latent variable of educational institution competitive advantage had the highest observed variable mean score of 4.45, followed by organizational excellence and organizational effectiveness, with scores of 4.44 and 4.43, respectively.

The latent variable of educational administration innovation had the highest observed variable mean score of 4.45, followed by product innovation and process innovation, with scores of 4.44.

The latent variable of business strategy had the highest observed variable mean score of 4.45, followed by personnel competence and cost management, with scores of 4.45, followed by quality commitment, with a score of 4.44.

The latent variable of organizational knowledge management had the highest observed variable mean score of 4.46, followed by knowledge sharing, knowledge dissemination, and knowledge creation, with scores of 4.45, 4.45, and 4.44, respectively.

Table 2 : *Statistical values obtained from confirmatory factor analysis of the variables of competitive advantage, educational administration innovation, business strategy, and organizational knowledge management.*

Components of variables used in the research	Element weight
Competitive advantages of educational institutions	
Organizational Excellence	0.906
Organizational effectiveness	0.920
Educational quality	0.904
Educational Administration Innovation Factors	
Product Innovation	0.953

Components of variables used in the research	Element weight
Process Innovation	0.934
Management Model Innovation	0.923
Business Strategy Factors	
Human Resources	0.936
Commitment to Quality	0.933
Cost Management	0.939
Organizational Knowledge Management Factors	
Knowledge Sharing	0.911
Knowledge Creation	0.930
Knowledge Dissemination	0.931
Knowledge Utilization	0.930
Chi-Square = 53.950 df = 45 P-value = 0.169 RMSEA = 0.024	

From Table 2, the confirmatory factor analysis results show that the overall fit of the research variables to the empirical data is consistent as evidenced by the following statistical values: Chi-square = 53.950, df = 45, P-value = 0.169, and RMSEA = 0.024. The details of each variable are as follows:

The Competitive Advantage (CA) component has component values ranging from 0.904 to 0.920, in descending order: Organizational Effectiveness, Organizational Excellence, and Educational Quality, have component values of 0.920, 0.906, and 0.904, respectively. The fit of the measurement model to the empirical data indicates that competitive advantage can be measured by all three components.

The Educational Administration Innovation (EI) component has component values ranging from 0.923 to 0.953, in descending order: Product Innovation, Process Innovation. and management model innovation, have component values of 0.953, 0.934, and 0.923, respectively. The consistency of the measurement model with empirical data indicates that educational management innovation can be measured by all three components.

The Business Strategy (BS) component has component values between 0.933 and 0.939, in descending order: cost management, personnel capability, and quality commitment, have component values of 0.939, 0.936, and 0.933, respectively. The consistency of the measurement model with empirical data indicates that business strategy can be measured by all three components.

The organizational knowledge management (KM) component has component values between 0.911 and 0.931: knowledge dissemination, knowledge creation, knowledge utilization, and knowledge sharing, have component values of 0.931, 0.930, 0.930, and 0.911, respectively. The consistency of the measurement model with empirical data indicates that business strategy can be measured by all four components.

Table 3 : *Direct, indirect, and overall influence values for each variable.*

	BS			EI			CA		
variable	DE	IE	TE	DE	IE	TE	DE	IE	TE
KM	0.984	0	0.984	0.887	0	0.887	0.811	0.117	0.928
BS	0	0	0	0	0	0	0.885	0	0.885
EI	0	0	0	0	0	0	0.942	0	0.942

Table 4 : *Harmony index of causal relationships affecting competitive advantage according to research hypothesis (n = 340)*

Conformity index	Evaluation criteria	Analysis results	Results of consideration
Chi-square	ค่า P-value > 0.05	1.199	consistent
RMSEA	< 0.05	0.024	consistent
RMR	< 0.05	0.004	consistent
SRMR	< 0.05	<0.0009	consistent
NFI	> 0.95	0.992	consistent
CFI	> 0.95	0.999	consistent
TLI	> 0.95	0.998	consistent

Sources: Byrne, 2001; Hair et al., 2010; Joreskog & Sorbom (1985)

From Table 4, the Chi-square value was 1.199, df = 45, P-value = 0.169, Root Mean Square Error of Approximation (RMSEA) was 0.024, Root Mean Square Residuals (RMR) was 0.004, Standardized Root Mean Square Residuals (SRMR) was <0.0009, National Fiscal Fiscal Year (NFI) was 0.992, Consolidated Fiscal Year (CFI) was 0.999, and the Total Fit Index (TLI) was 0.998. All values passed the specified criteria. Therefore, it can be concluded that the hypothesized causal relationship model is consistent with the empirical data.

Focus Group Discussion Results: Recommendations for Policy Enhancement to the Competitive Advantage of Secondary Schools Under the Office of the Basic Education Commission. It was found that 1) educational administrators must be flexible and able to move in the current era, have vision, and be international. 2) have a system for driving AI technology, human resource management, teacher and personnel innovations. 3) a system for verifying the accuracy of information. 4) network cooperation.

Discussion of Results

The data analysis and conclusions regarding the causal model of factors influencing the competitive advantage of secondary schools under the Office of the Basic Education Commission are discussed below. The researchers discussed key points from the research findings, demonstrating the importance of educational administration innovation, organizational knowledge management, and business strategy, which all play a significant role in influencing the overall competitive advantage of secondary schools. To clarify each point, the researchers present a discussion of the findings as follows:

The educational administration innovation variable had a combined influence on competitive advantage, with an influence value of 0.942. This is comprised of three observable variables: 1) product innovation, 2) process innovation, and 3) management model innovation. This aligns with Sundusiah Sundusiah's (2021) study on the influence of organizational learning and innovation on the competitive advantage of vocational high schools in West Java Province.

The results of the study revealed that innovation directly impacts the competitive advantage variable at a significance level of 0.05. Putra Pratama's (2025) study on the analysis of sustainable competitive advantage influenced by organizational culture and leadership behavior through technological innovation demonstrated that organizational culture contributes to sustainable competitive advantage through technological innovation and leadership behavior influences technological innovation, leading to sustainable competitive advantage. Furthermore, Sasinipa Srikalyaniwat (2022) and Anuwat Songsom (2019) indicated that innovative capability impacts competitive advantage. Chen and Wu (2015) found that innovative capability has a direct, positive influence on competitive advantage, with an influence coefficient of 0.502 ($p<.001$). This is consistent with Mohd (2012), who studied the competitive advantage strategies of SMEs in Malaysia and found that innovative capability, particularly in product and process aspects, was significantly related to competitive advantage at the .05 and .01 levels.

The organizational knowledge management variable has a total influence on competitive advantage, with an influence coefficient of 0.928. It consists of four observable variables: 1) knowledge sharing, 2) knowledge creation, 3) knowledge dissemination, and 4) knowledge utilization. This is consistent with Ni Wayan Sitiari's (2024) study on creating sustainable competitive advantage in the academic environment of private higher education in Bali. The results of the study revealed that Knowledge management variables have a direct effect on competitive advantage variables at a significance level of 0.05. This is consistent with Fariz (2024), who studied the research on enhancing the competitive advantage of higher education institutions through the implementation of knowledge management and information technology. The results indicated that the variance of organizational knowledge management variables, especially knowledge management infrastructure and knowledge management processes, has a significant impact on competitive advantage. Sundusiah Sundusiah (2021) studied the influence of organizational

knowledge management and organizational innovation on the competitive advantage of vocational high schools in West Java Province. The results of the study revealed that organizational knowledge management variables have a direct effect on the competitive advantage variables at a significance level of 0.05. In addition, Bina Nusantara (2016) found that organizational knowledge management has a significant effect on sustainable competitive advantage with a path coefficient of 0.879, a T-statistic of 7.279, and a p-value of 0.000. Elistia (2025) concluded that organizational knowledge management has a significant positive effect on sustainable competitive advantage (β = 0.553, t = 5.258, p = 0.000). Therefore, the hypothesis was accepted. This is consistent with Firman (2018), who studied the effects of organizational knowledge management and organizational innovation on the competitive advantage of higher education in Padang. It was found that organizational knowledge management has a significant direct effect on competitive advantage at the 0.05 level.

Business strategy has a total influence on competitive advantage with an influence value of 0.885, consisting of three observable variables: 1) personnel capabilities, 2) quality commitment, and 3) cost management. This is consistent with Ni Wayan Sitiari (2024), who studied the creation of sustainable competitive advantage in the academic environment of private higher education in Bali. The research showed that the influence of knowledge management on business strategy and competitive advantage is positive and significant. Business strategy mediates the influence of KM processes on competitive advantage. The results showed that business strategy variables have a direct effect on competitive advantage variables at the 0.05 level of significance, which is consistent with Elkana Timotius (2023), who conducted a study entitled 'The Role of Innovation in Business Strategy as a Competitive Advantage: Evidence from Indonesian MSMEs' and revealed that innovation significantly mediates the influence of business strategy on a firm's competitive advantage. Finally, product innovation may increase competitive advantage by 53.1%, followed by process innovation and people innovation by 47.2% and 44.5%, respectively.

Recommendations

1. Suggestions for Implementing the Research Results

1.1 The research results revealed that educational administration innovations directly influence the competitive advantage of secondary schools under the Office of the Basic Education Commission. Therefore, at the policy level, the Office of the Basic Education Commission, as the parent agency, should prioritize extending educational administration innovations. It should promote the creation of new and beneficial innovations, whether in the areas of school administration, teaching, or other areas that reflect the expertise of the educational institution.

2. Suggestions for Further Research

2.1 The research results revealed that educational administration innovations directly influence the competitive advantage of secondary schools under the Office of the Basic Education Commission. Therefore, the researchers recommend studying the factors affecting the development of educational administration innovations that directly influence the competitive advantage of secondary schools for appropriate future application.

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