Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 8, 300-311
2025
Publisher: Learning Gate
DOI: 10.55214/2576-8484.v9i8.9285

Agile organization development model of secondary schools under the office of basic education commission

Nattaphong Kriangkraiwong[1*], Thanomwan Prasertcharoensuk[2], Parnpitcha Kanjug[3]
[1,2,3]Faculty of Education, Khon Kaen University, Thailand; nattaphong.chula@gmail.com (N.K.).

Abstract: The research employed a mixed-methods approach conducted in three phases: (1) document and literature analysis coupled with in-depth interviews with experts; (2) Confirmatory Factor Analysis (CFA) to identify key components; and (3) model development and evaluation. Phase three involved a case study of two prototype schools, the drafting of a Multi-Attribute Consensus Reaching (MACR) model, and its subsequent evaluation for suitability, feasibility, and utility. In Phase 1, a comprehensive literature review and expert interviews established the key components and indicators. Phase 2 employed confirmatory factor analysis on data from 420 administrators and teachers—yielding χ^2 = 98.479, df = 86 (χ^2/df = 1.145), p = 0.1678, RMSEA = 0.020, SRMR = 0.029, CFI = 0.998, and TLI = 0.995—to confirm model consistency. Phase 3 involved developing and evaluating an agile organization model, which comprises a model name, principles and concepts, objectives, 36 practical guidelines, 20 success goals, and 20 mechanisms for driving success. Expert evaluations indicated that the model is highly suitable, feasible, and useful.

Keywords: *Agile organization, CFA, Secondary Schools.*

1. Introduction

In the contemporary era characterized by unprecedented dynamism and constant flux, the global landscape faces multifaceted challenges that profoundly impact various sectors, including education. Specifically, secondary schools in Thailand are compelled to adapt rapidly to navigate the evolving socio-economic and technological contexts [1]. Recent global events, such as the COVID-19 outbreak, have significantly influenced not only social fabrics, economic systems, and the global educational system, but also necessitated a shift in pedagogy from traditional classroom settings to blended learning approaches in response to a dynamic world [2]. This adaptation is crucial to prepare for and effectively manage future unprecedented events [3]. Moreover, it highlights limitations in teaching and learning methodologies and underscores environmental concerns stemming from the booming yet unsustainable digital economy [4]. Persistent challenges in Thai educational quality are evident, as a significant portion of the population lacks tech-savvy skills and access to cutting-edge technological devices. This directly contributes to a lack of agility in school administration, rendering it inconsistent with the demands of the new global era [2]. Consequently, the emerging BANI (Brittle, Anxious, Non-linear, Incomprehensible) world presents both opportunities and critical challenges for the educational system. It underscores the urgent need to embrace new requirements and changes, particularly in addressing issues of unsustainable growth and organizational rigidity [5].

Therefore, the notion of Agile Organization plays a vital role in management, enabling organizations to adapt and navigate economic downturns, social changes, and technological advancements [6]. Moreover, agile organizations often thrive under visionary leaders who cultivate open-mindedness and trust within their teams [7]. Effective teamwork and collaborative decision-making are considered pivotal factors for achieving rapid change amidst unprecedented events [8].

History: Received: 8 May 2025; Revised: 14 July 2025; Accepted: 17 July 2025; Published: 5 August 2025
* Correspondence: nattaphong.chula@gmail.com

Notably, digital disruption further fosters greater organizational agility [9]. Consequently, the emphasis on agility within the education system, particularly in the digital age, empowers institutions and organizations to effectively meet evolving learners' and societal needs. This encompasses both management development and the strategic implementation of agile digital tools and practices [10].

The Office of Basic Education Commission (OBEC), in its provision of basic education, emphasizes decentralization and flexibility to meet learners' evolving needs and foster the involvement of local communities and stakeholders [11]. This decentralization across academic, fiscal, and personnel aspects effectively addresses the requirements of specific areas, thereby fostering transparent accountability and promoting sustainable development [12]. Consequently, OBEC places significant emphasis on cultivating school agility to effectively respond to evolving demands [10].

During the severe outbreak of the COVID-19 pandemic, secondary schools encountered significant challenges in providing effective teaching and learning experiences to foster analytical skills among learners aged 12–18 years [11]. This was largely due to the unaffordability of technology for many learners, hindering their access to remote and online learning opportunities [13]. However, the implementation of decentralized administration coupled with robust technology integration can alleviate these obstacles. Such approaches can significantly enhance schools' flexibility and their ability to quickly meet local needs, thereby paving the way for the development of an agile organization capable of embracing and navigating future uncertainties [10].

However, the critical problem in the Thai school context remains that the study of components and indicators of agile organization is still ambiguous at the secondary school level. Moreover, there is a notable lack of systematic and rigorous investigation into agile organization development models [14]. These factors contribute to significant challenges within the Thai educational system, underscoring the critical need to systematically and sustainably develop new approaches by adopting the notion of agility in secondary school administration. Such initiatives are essential for elevating educational quality and enhancing the capability of schools to navigate future challenges effectively [9].

Despite the growing interest in agile organization in education, most studies have focused on higher education institutions or international schools. Consequently, there remains a significant gap in understanding how public secondary schools, particularly those under OBEC with their unique bureaucratic constraints and cultural contexts, can effectively develop and implement agile organizational models. Furthermore, no comprehensive model has yet been developed specifically for Thai secondary schools that considers both theoretical frameworks and practical implementation challenges.

2. Literature Review

2.1. The Evolution and Core Concepts of Agile Organization

The concept of agile, initially emerged within the software development industry, was a response to the urgent need for rapid product distribution with minimal errors and strict time constraints. This involved streamlining processes, such as reducing unnecessary documentation and third-party approvals, and launching pilot models even before final manufacturing or packaging. A fundamental aspect of this early approach was the rapid analysis of customer feedback to refine functionality and address errors, thereby ensuring continuous quality improvement [15]. This iterative and responsive approach soon became foundational to the broader notion of agile performance, which was subsequently adopted across diverse industries and enterprises due to its effectiveness in managing complex processes and reducing costs.

As the global economic landscape became more dynamic, particularly evident in periods of economic downturn, various organizations faced immense pressure to adapt. This led to a redefinition of organizational development, moving towards what many academics and theorists termed "Agile Organization." The emergence of "Agile" as a solution for handling dynamic change can be traced back to the 1990s, when it was initially applied in agile manufacturing. This application aimed to enable industries to not only survive in competitive environments but also to respond promptly and practically

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 8: 300-311, 2025
DOI: 10.55214/2576-8484.v9i8.9285

to unprecedented market dynamics [16]. Such responsiveness in agile manufacturing contributed to successful sales volumes and enhanced production processes for businesses. Gunasekaran, et al. [17] further elaborated that agile theory stems from the principle of flexible task performance, emphasizing two core concepts: organizational restructuring capability and flexibility through adaptive models, structures, and operational levels. These capabilities profoundly influence how quickly businesses and firms can adjust to change.

In the contemporary context, characterized by phenomena such as VUCA (Volatility, Uncertainty, Complexity, Ambiguousness) and the more recent BANI (Brittle, Anxious, Non-linear, Incomprehensible) world, crises like the COVID-19 pandemic have resulted in widespread economic casualties, financial crises, and business failures. To survive and thrive amidst such challenges, organizations are compelled to move beyond traditional business practices and embrace innovative alternatives to achieve their strategic goals [18]. As noted by Harnusaha [8] volatility and uncertainty, whether caused by natural disasters or pandemics, lead to disruptions across economic practices, social fabrics, and even educational systems. In this scenario, the notion of organizational agility becomes paramount, facilitating prompt and practical responses to business practices and serving as a critical component for future strategic planning, particularly in an era driven by disruptive change in digital transformation [9].

2.2. Agile Organization in the Context of Education

While originating in software development and extensively adopted in business, the principles of agility have increasingly found relevance within the educational sector. The emphasis on agility in the education system, particularly in the digital age, empowers institutions and organizations to effectively meet evolving learners' and societal needs. This encompasses both strategic management development and the practical implementation of agile digital tools and practices [10].

Developing an agile organization plays an essential role in the educational context, especially at the secondary school level. This is crucial as it facilitates and prepares students for future transitions into dynamic workplaces. The ability of schools to effectively adapt to forthcoming challenges and shifts in the new era largely depends on agile management, which is driven by and aligned with their ultimate goals. This necessitates visionary leadership to promote an organizational culture that fosters teamwork and trust, thereby enabling staff to collaboratively solve problems, enhance task performance, and embrace innovative ideas and diverse perspectives from all individuals [7]. Moreover, an agile organization not only cultivates a cooperative culture conducive to problem-solving but also promotes creativity to achieve institutional goals promptly and effectively amidst ongoing circumstances.

2.3. Components and Indicators of Agile Organization in Secondary Schools (with Comparative Analysis)

The successful implementation of an agile organization within educational settings necessitates a clear understanding of its constituent components and indicators. While various scholars have proposed frameworks for organizational agility across different sectors, the specific elements relevant to secondary schools, particularly in the Thai context, require focused comparative analysis.

Drawing from existing literature, the foundational components of agile organizations often include Resilience Structures, emphasizing adaptability and cross-functional collaboration. For instance, Tokham [19] identified 24 dimensions of organizational agility, with 'detection' and 'response' being the most frequent, and highlighted success factors such as IT, innovation, and knowledge capabilities. Tippanya [20] in a public sector case, emphasized process improvement for agility and personnel development through technology implementation. Similarly, Rangsimantsiri and Mutitacharern [21] pointed to effective communication strategies, communication leadership, and a supportive organizational culture as crucial for agile adoption in banking. Wasayangkul and Ploydungrat [22] further underscored the importance of developing an 'agile mindset' encompassing cognitive, interpersonal, change, and outcome agility for human resource management in disruptive times.

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 8: 300-311, 2025
DOI: 10.55214/2576-8484.v9i8.9285

In the context of educational institutions, various studies have started to delineate specific components and implementation strategies. Kotarak [23] in a study on an agile international school in Thailand, highlighted the emphasis on people and interaction, agile team leadership (leading to quick goal achievement), platform-based work, and timely decision-making. For public and private schools in Iran, Eghbal and Hoveida [24] using the Sharifi and Zhang [25] model, identified components like 'accountability/responsibility' and 'capability,' alongside 'speed' and 'flexibility.' Developing a measurement tool for school agility, Kaya and Özdemir [26] validated three key factors: 'flexibility,' 'technology,' and 'speed.' In a Thai university context, Srimaserm and Euasmit [27] identified six success factors for agile application in system development, including personnel's acceptance of change, cross-functional participation, effective inter-departmental communication, team autonomy, clear success indicators, and an 'agile mindset.' Furthermore, Srisura [28] applied Agile (Scrum) principles to develop an online platform for community enterprises, noting the importance of timely decision-making and increased interaction. Boonratphan [29] emphasized digital competency development in HR, high-agility teamwork, and cross-functional work for digital innovation in organizations facing digital transformation. Based on insights derived from both general agile theory and emerging applications in education, this study posits six critical components for an agile organization in secondary schools. These components outline how a school can effectively handle dynamic change across all aspects of organizational management, including restructuring, management practices, and task performance, within an agile organizational structure:

Resilience Structure: Schools maintain a Resilience Structure that allows for dynamic adaptation. Workflows support cross-functional management and empower staff in decision-making, thereby increasing agility and enhancing effective task performance.

Customer Centric: This involves the continuous improvement of data collection and needs analysis from clients (learners, parents, community). Client engagement is actively sought as a crucial part of ongoing assessment and evaluation to meet evolving needs.

Agile Implementation: Teachers and staff are actively engaged in continuous professional development through seminars and workshops. Diversity and engagement are normalized among staff, enhancing flexibility in roles and responsibilities and supporting work-life balance.

Innovative Integration: Schools effectively leverage technological advancements to establish robust networks for collaboration among staff. A centralized hub for data dissemination further promotes cross-operational performance, enabling real-time data monitoring to support dynamic change and future expansion.

Agile Leadership: This refers to the behaviors and performance of school administrators that foster collaboration and build trust among teachers and staff. Staff are also empowered to assume leadership roles, cultivating a sense of dynamic change and promoting prompt decision-making.

Agile Organizational Culture: This component involves constructing an agile organizational environment through a strong sense of unity, engagement, and organizational partnerships. Such a culture further enhances education and innovation within a secure and supportive workplace.

3. Methodology

This study adopted Mixed Method research with multiphase design by Creswell and Plano Clark [30]. It was divided into three phases; phase 1 included on qualitative research, while phase 2 involved quantitative research and phase 3 focused on Mixed Method Research. The objectives of the study are to:

1. Examine the components and indicators of agile organization in secondary schools under the Office of Basic Education Commission.

2. Assess the consistency of the agile organization indicators model for these secondary schools with empirical data.

3. Develop a model to enhance the agile organization in secondary schools under the Office of Basic Education Commission.

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 8: 300-311, 2025
DOI: 10.55214/2576-8484.v9i8.9285

4. Evaluate the developed model in terms of its propriety, feasibility, and utility.

The research is conducted in three phases with the following procedures:

3.1. Phase 1

Investigate the components and indicators of agile organization in schools was in-depth synthesis of documents, literature, related studies and expert in-depth interview on the development of agile organization among secondary schools and the model schools with best practices for the verification of agile organization characteristics.

3.2. Phase 2

Examine the congruence of the agile organization development model of secondary schools under the Office of Basic Education Commission with empirical data through Confirmatory Factor Analysis (CFA).

3.3. Phase 3

Conduct case studies was considered a qualitative data derived from two secondary schools with best practices in order to confirm the characteristics of agile organization. The two secondary schools were purposive sampling in order to conduct an in-depth interview with school principals and teachers exploring and analyzing the phenomena of agile organization administration within the schools with the main elements indicated in framework. In these cases, schools apply agile organization in managing the institution with clear, measurable outcomes. A model for developing agile organization secondary schools under the Office of Basic Education Commission is drafted and then evaluated using a Multi-Attribute Consensus Reaching (MACR) process with 10 experts from academic and practitioner backgrounds. Finally, the proposed model is assessed by 9 experts in terms of its propriety, feasibility, and utility.

Ethical Considerations This study was conducted in strict adherence to ethical guidelines for human research. Prior to data collection, the research protocol, including all instruments and procedures, received official approval from the "Center for Ethics in Human Research, Khon Kaen University", under protocol number HE673477 on 14 January 2025.

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 8: 300-311, 2025
DOI: 10.55214/2576-8484.v9i8.9285

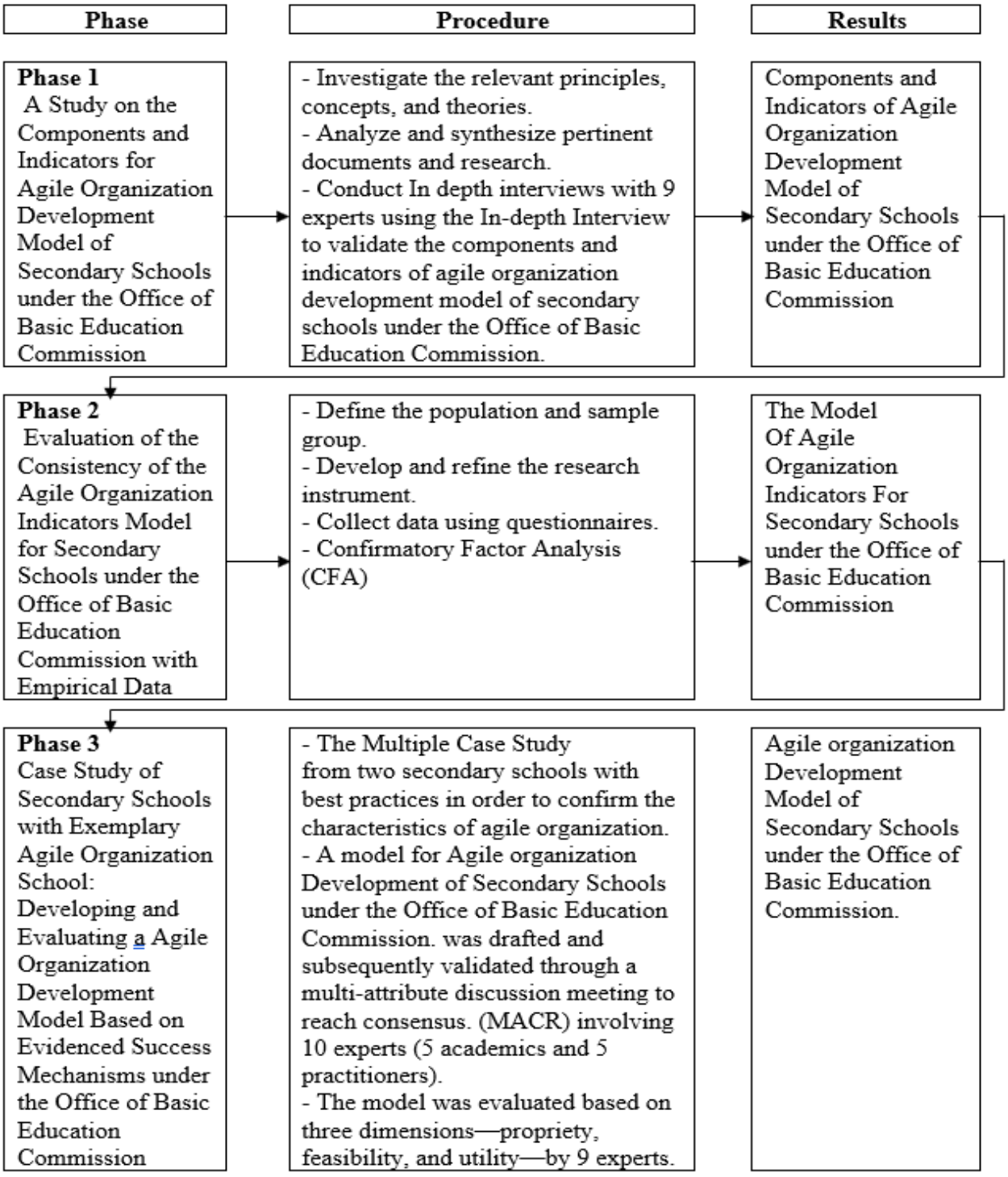

Figure 1.
Steps of the Research Procedure.

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 8: 300-311, 2025
DOI: 10.55214/2576-8484.v9i8.9285

4. Results

4.1. Identifying The Components and Indicators of Agile Organization Development Model of Secondary Schools Under the Office of Basic Education Commission.

Based on the theoretical frameworks and concepts proposed by Yusuf, et al. [16], Sharifi and Zhang [25], Lau and Wong [31], Sherehiy, et al. [32], Žitkienė and Deksnys [33], Brosseau, et al. [34], Eghbal and Hoveida [24], Wijayanti, et al. [35], Holbeche [36], Suntareeya [37], Kittiya and Raksitt [38] and Office of the Civil Service Commission [9] this research adopted a comprehensive framework for Agile organization. The researcher analyzed and synthesized these sources to derive six key components of Agile organization of Secondary Schools under the Office of Basic Education Commission, as follows:

(1) Agile organizational culture
- Organizational Engagement
- Sense of Ownership
- Fostering Innovation

2) Agile leadership
- Visionary Leadership
- Building Trust
- Rapid Decision-Making
- Adaptability to Change

3) Resilience structure
- Contextual adaptation of organizational structure
- Cross-functional teams
- Staff Empowerment

4) Agile implementation
- Continuous Professional Development
- Hiring Flexible Workforce
- Role Flexibility
- Work-Life Integration

5) Customer-centric
- Customer Needs Assessment and Analysis
- Responsiveness to Customer Needs
- Fostering Engagement and Continuous Development

6) Innovative integration
- Centralized Data Management System
- Accessible Data
- Leveraging Technology for Flexible Work

The evaluation of the measurement model for the agile organization development of secondary schools under the office of basic education commission components revealed that the model comprises 6 components with a total of 20 indicators. Specifically, Component 1 includes 3 indicators, Component 2 includes 4 indicators, Component 3 includes 3 indicators, Component 4 includes 4 indicators, Component 5 includes 3 indicators, and Component 6 includes 3 indicators. A total of 26 observed variables were analyzed using Pearson's Product Moment Correlation Coefficient. The analysis demonstrated that all variable pairs exhibited positive correlations that were statistically significant at the .01 level, indicating that the inter-variable relationships are sufficiently strong (measure of sampling adequacy) to proceed with further analysis.

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 8: 300-311, 2025
DOI: 10.55214/2576-8484.v9i8.9285

4.2. Validation The Consistency of These Indicators with Empirical Data

The agile organization components of secondary schools under the office of basic education commission comprise 6 dimensions. Every pair of variables exhibited statistically significant positive correlations at the 0.01 level, with correlation coefficients ranging from 0.294 to 0.842. The highest correlation was observed between " adaptability to change " (al4) and "rapid decision-making" (al3) (r = 0.842), In contrast, the lowest correlation was found between " centralized data management system " (ai1) and " cross-functional teams " (rc2) (r = 0.294).

The fit indices of the measurement model for the agile organization components of secondary schools under the office of basic education commission meet the specified criteria. Specifically, the chi-square (χ^2) value is 98.479 with 86 degrees of freedom (p = 0.1687), indicating that the chi-square is not statistically significant. Additionally, the Root Mean Square Error of Approximation (RMSEA) is 0.020, the Standardized Root Mean Square Residual (SRMR) is 0.029, the Comparative Fit Index (CFI) is 0.998, and the Tucker-Lewis Index (TLI) is 0.995. These values collectively suggest that the measurement model fits the empirical data well.

The confirmatory factor analysis of the key components of agile organization development model of secondary schools under the office of basic education commission revealed the following standardized factor loadings and predictive coefficients (R^2):

- The highest loading was observed for the "Agile organizational culture" component (ae) with β = 0.980 and R^2 = 0.961.
- This was followed by the "Agile leadership" component (al) with β = 0.903 and R^2 = 0.816.
- The lowest loading was for the " Innovative integration" component (ai) with β = 0.795 and R^2 = 0.633.

These findings indicate strong relationships among the indicators, supporting the validity of the measurement model for agile organization.

4.3. Developing a Corresponding Agile Organization Model

The development of a model for enhancing the agile organization of secondary schools under the office of basic education commission is divided into two stages. In the first stage, field visits are conducted to draft the model through multiple case studies. These case studies examine the characteristics, phenomena, strategies, conditions, and outcomes associated with the emergence of agile organization. The target sites are secondary schools under the office of basic education commission, leading to outstanding organizational development results in terms of management, in fact, there are two schools that have been recognized outstandingly by receiving the OBEC QA award.

The model for developing agile organization of secondary schools under the office of basic education commission was constructed based on findings from Phase 1 and Phase 2. It integrates the components and indicators of agile organization—comprising 6 components, 20 indicators, and 26 behavioral variables that demonstrated consistency with the empirical data—with insights derived from a review of relevant theories and conceptual frameworks. This integrated approach provided the foundation for a high-quality, practically applicable model. The model consists of six sections:

1. Model Name
2. Principles and Concepts
3. Model Objectives
4. Implementation Procedures
5. Success Targets
6. Mechanisms for Driving Success

In evaluating the model for developing agile organization of secondary schools under the office of basic education commission, the researcher employed foundational theoretical concepts (2560) alongside the model framework proposed by Keeves [39] The resulting model comprises six components:1.

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 8: 300-311, 2025
DOI: 10.55214/2576-8484.v9i8.9285

Model Name, 2. Principles and Concepts, 3. Model Objectives, 4. Implementation Procedures, 5. Success Targets, and 6. Mechanisms for Driving Success.

4.4. Assessing the Model's Suitability, Feasibility, and Utility

The researcher then assessed the quality of the model in terms of its propriety, feasibility, and utility. For this evaluation, a panel of 9 experts—meeting the predetermined criteria—was assembled. This panel included 3 policy- and planning-level administrators (education administrators and supervisors), 3 school-level administrators, and 3 academic experts in educational administration holding a doctoral degree. These experts evaluated the model, confirming its potential for practical application in the context of secondary schools under the office of basic education commission.

4.4.1. Evaluation Results

The model was assessed in two main parts:

4.4.2. Evaluation of Model Name, Objectives, and Underlying Principles (Feasibility and Utility)

1. Model Name: Rated as highly appropriate, feasible, and useful with an average score of 5.00 (S.D. = 0.00).

2. Objectives: Rated very highly with an average score of 4.78 (S.D. = 0.44).

3. Principles and Concepts: Achieved the maximum rating with an average score of 5.00 (S.D. = 0.00).

4.4.3. Evaluation of the Overall Model Quality

The model comprises six components. The evaluations for each component are as follows:

Table 1.
Evaluation of the Overall Model Quality.

Component of Agile Organization	Propriety		Feasibility		Utility	
	$\bar{x}$	S.D.	$\bar{x}$	S.D.	$\bar{x}$	S.D.
Agile organizational culture	4.78	0.44	4.78	0.44	4.56	0.53
Agile leadership	4.78	0.44	4.56	0.43	4.60	0.48
Resilience Structure	4.78	0.44	4.22	0.67	4.33	0.71
Agile implementation	4.67	0.50	5.00	0.00	4.78	0.44
Customer-centric	4.33	0.71	5.00	0.00	4.56	0.53
Innovative integration	4.61	0.41	4.56	0.43	4.63	0.47

The overall propriety ratings are consistently high, with the highest scores observed for the " Agile organizational culture " and " Agile leadership " and " Resilience Structure " components, followed by " Agile implementation," " Innovative integration," and " Customer-centric."

Feasibility ratings are uniformly high, with the " Agile implementation " and " Customer-centric " component receiving the highest score, and " Resilience Structure " the lowest among the six.

All components were rated at the highest level of Utility, with " Agile implementation," " Innovative integration," " Agile leadership," and " Agile organizational culture " and "Customer-centric" each achieving perfect scores, and " Resilience Structure " rated slightly lower at 4.33.

Overall, the model for developing agile organization of secondary schools under the office of basic education commission is considered highly appropriate, feasible, and useful across all evaluated dimensions.

5. Discussion

This study successfully developed and validated a comprehensive agile organization model for Thai secondary schools, revealing insights with both theoretical and practical implications. The six core elements identified (Resilience Structure, Customer-centric, Agile Implementation, Innovative

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 8: 300-311, 2025
DOI: 10.55214/2576-8484.v9i8.9285

Integration, Agile Leadership, and Agile Organizational Culture) and their indicators largely align with existing national and international literature, such as principles from Beck, et al. [40] on agile culture, PSI Solutions [41] and Sinthunok [42] on agile leadership, and Sharifi and Zhang [43] on structural adaptability.

Qualitative expert insights, however, revealed practical gaps in implementing these elements within the school context, such as challenges in authorization due to lack of trust, limitations in digital access for innovative integration, and cultural hurdles related to work-life balance hindering structural flexibility.

The Confirmatory Factor Analysis (CFA) strongly supported the model's empirical fit. Agile Organizational Culture emerged as the element with the highest factor loading, underscoring its foundational importance in schools, consistent with arguments by Felipe, et al. [44] and Denning [7] on culture's role in embracing change and driving performance. Interestingly, Innovative Integration exhibited the lowest factor loading. This unexpected finding suggests that despite technology's recognized importance, practical barriers like infrastructure, budget, and teacher digital skills in Thai schools may currently limit its immediate impact on agility more than other factors. The model's practical utility was further validated by a "Very High" expert rating for its appropriateness, feasibility, and benefits through the Multi-Attribute Consensus Reaching (MACR) conference, aligning with the methodological rigor advocated by King and Mazzocco [45].

Theoretically, this study extends agile organization theory to the unique, human-centric context of secondary education, highlighting that cultural shifts may be paramount for agile transformation in schools. The lower loading of Innovative Integration prompts a theoretical consideration: agile models require contextual adaptation that accounts for varying levels of readiness across different dimensions, challenging a universal assumption of technology's uniform driving impact.

Practically, the findings underscore the need for schools to prioritize fostering an agile organizational culture, investing in agile leadership development, and specifically addressing bottlenecks in digital infrastructure and teacher digital literacy to fully realize the benefits of innovative integration. The validated model offers a robust framework for systematic agile transformation.

Finally, the study acknowledges limitations, including its focus solely on Thai secondary schools under OBEC (limiting generalizability) and its cross-sectional design (not capturing temporal change). Future research should consider longitudinal and comparative studies, as well as intervention research to address specific challenges like those in innovative integration.

6. Empirical Findings

The research successfully identified and empirically validated six key elements and twenty indicators of an agile organization applicable to the Thai secondary school context. The developed model demonstrated a strong statistical fit with empirical data, confirming its structural validity. Furthermore, it received overwhelming expert approval through the Multi-Attribute Consensus Reaching process, confirming its appropriateness, feasibility, and benefits for practical implementation. Notably, Agile Organizational Culture emerged as the most significant element, highlighting its foundational role in fostering agility within this educational setting. This finding holds significant theoretical implications, as this study contributes significantly to the existing body of knowledge by extending agile organizational theory beyond its traditional business and software development origins into the public educational sector. It provides a context-specific, empirically validated model of agile organization tailored for secondary schools, which uniquely identifies and prioritizes elements within this distinct environment. The finding that Agile Organizational Culture is the most influential factor offers a nuanced theoretical insight, suggesting that in human-centric institutions like schools, cultural transformation may be a paramount prerequisite for successful agile adoption, potentially more so than in other sectors. This enriches agile theory by demonstrating its adaptable nature across diverse organizational contexts and highlighting the varying emphasis of its core components.

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 8: 300-311, 2025
DOI: 10.55214/2576-8484.v9i8.9285

Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

References

[1] W. F. Cascio and R. Montealegre, "How technology is changing work and organizations," *Annual Review of Organizational Psychology and Organizational Behavior*, vol. 3, pp. 349–375, 2016.

[2] Office of the Education Council Secretariat, *Report on policy data analysis and synthesis*. Bangkok, Thailand: Office of the Education Council Secretariat, 2017.

[3] OECD, "A framework to guide an education response to the COVID-19 pandemic of 2020," 2020. https://www.oecd.org/education/framework-education-response-covid19-pandemic/

[4] World Economic Forum, "Schools of the future: Defining new models of education for the fourth industrial revolution," 2020. https://www.weforum.org/

[5] World Bank, "The COVID-19 pandemic: Shocks to education and policy responses," 2020. https://www.worldbank.org/en/topic/education/publication/the-covid19-pandemic-shocks-to-education-and-policy-responses

[6] L. Holbeche, "Designing sustainably agile and resilient organizations," *Systems Research and Behavioral Science*, vol. 36, no. 5, pp. 668-677, 2019. https://doi.org/10.1002/sres.2624

[7] S. Denning, "Succeeding in an increasingly Agile world," *Strategy & Leadership*, vol. 46, no. 3, pp. 3-9, 2018. https://doi.org/10.1108/sl-03-2018-0021

[8] R. Harnusaha, "Agile leadership and organizational adaptation in times of disruption," Unpublished Manuscript or Internal Report. Faculty of Management Sciences, Mahidol University, 2021.

[9] Office of the Civil Service Commission, "Agile organization: An agile organization," 2023. https://www.ocsc.go.th

[10] Office of the Permanent Secretary Ministry of Education, *Annual report B.E. 2566 (Academic Year 2023/2024)*. Bangkok, Thailand: Office of the Permanent Secretary, Ministry of Education, 2024.

[11] P. Sahlberg, *Finnish lessons: What can the world learn from educational change in Finland?* New York: Teachers College Press, 2011.

[12] B. J. Caldwell and J. M. Spinks, *The self-transforming school*. London: Routledge, 2013.

[13] R. Siripan, S. Noksuan, and C. Sawasdee, *Digital inequality and student learning during the COVID-19 pandemic in Thailand*. Bangkok, Thailand: Ministry of Digital Economy and Society, 2021.

[14] Office of the Permanent Secretary Ministry of Education, *Thailand's 20-year education development strategy (2017–2036)*. Bangkok, Thailand: The Office, 2023.

[15] Tuxsa Blog, *Agile organizations: Modern management for modern times*. Bangkok, Thailand: Tuxsa Co., Ltd, 2021.

[16] Y. Y. Yusuf, M. Sarhadi, and A. Gunasekaran, "Agile manufacturing: The drivers, concepts and attributes," *International Journal of Production Economics*, vol. 62, no. 1-2, pp. 33-43, 1999.

[17] A. Gunasekaran, K.-H. Lai, and M. A. Waller, "Agile manufacturing: A taxonomy of strategic and technological imperatives," *International Journal of Production Research*, vol. 45, no. 18-19, pp. 4475–4499, 2007.

[18] I. Nonaka and H. Takeuchi, *The knowledge-creating company: How Japanese companies create the dynamics of innovation*, 2nd ed. Oxford, UK: Oxford University Press, 2016.

[19] P. Tokham, "Dimensions and success factors of organizational agility: A comprehensive study," *Journal of Rangsit Graduate Studies in Business and Social Sciences*, vol. 7, no. 1, pp. 101–118, 2020.

[20] J. Tippanya, *Agile organization: Management in the age of disruption*. Bangkok: Chulalongkorn University, 2021.

[21] P. Rangsimantsiri and P. Mutitacharern, "Effective communication strategies, communication leadership, and organizational culture for agile adoption in banking," *International Journal of Business and Management*, vol. 16, no. 4, pp. 45-58, 2021.

[22] T. Wasayangkul and C. Ploydungrat, "Human resource management in the age of disruptive change through building an agile organization," *Journal of Human Resource Management*, vol. 4, no. 4, pp. 15–28, 2022.

[23] N. Kotarak, "Management innovation for Thai language and culture programs in international schools in Thailand based on the concept of agile learner characteristics," *Journal of Rangsit Graduate Studies in Business and Social Sciences*, vol. 7, no. 1, pp. 101–118, 2020.

[24] F. Eghbal and R. Hoveida, "Organizational agility in public and private schools," *International Journal of Education and Cognitive Sciences*, vol. 2, no. 2, pp. 25-30, 2022.

[25] H. Sharifi and Z. Zhang, "Agile manufacturing in practice - Application of a methodology," *International Journal of Operations & Production Management*, vol. 21, no. 5-6, pp. 772-794, 2001. https://doi.org/10.1108/01443570110390462
[26] A. Kaya and M. Özdemir, "Developing and validating a measurement tool for school agility: Key factors of flexibility, technology, and speed," *Journal of Educational Management Studies*, vol. 15, no. 3, pp. 215–230, 2022.
[27] N. Srimaserm and Y. Euasmit, "Success factors for agile application in system development in a Thai university context," *International Journal of Agile Systems and Management*, vol. 14, no. 1, pp. 45–62, 2022.
[28] R. Srisura, "Application of Agile Scrum principles for developing an online platform for community enterprises," *Journal of Digital Innovation*, vol. 8, no. 2, pp. 78–91, 2022.
[29] T. Boonratphan, "Enhancing digital competency, teamwork agility, and cross-functional work for digital innovation in organizational digital transformation," *Journal of Human Resource and Technology*, vol. 9, no. 1, pp. 12–26, 2023.
[30] J. W. Creswell and V. L. Plano Clark, *Designing and conducting mixed methods research*, 2nd ed. Thousand Oaks, CA: Sage, 2011.
[31] H. C. W. Lau and C. W. Y. Wong, *Infrastructure of an agile supply chain system: A virtual agent modeling approach. In P.M.A. Sloot et al. (Ed.). ICCS 2003, Lecture Notes in Computer Science*. New York: Springer-Verlag, 2003.
[32] B. Sherehiy, W. Karwowski, and J. K. Layer, "A review of enterprise agility: Concepts, frameworks, and attributes," *International Journal of Industrial Ergonomics*, vol. 37, no. 5, pp. 445-460, 2007. https://doi.org/10.1016/j.ergon.2007.01.007
[33] R. Žitkienė and M. Deksnys, "Organizational agility conceptual model," *Montenegrin Journal of Economics*, vol. 14, no. 2, pp. 115-129, 2018.
[34] D. Brosseau, S. Ebrahim, C. Handscomb, and S. Thaker, *The journey to an agile organization*. USA: McKinsey & Company, 2019.
[35] L. M. Wijayanti, J. T. Purba, E. S. Hariandja, and R. Sijabat, "Organizational agility in educational setting: A case study of Sekolah murid Merdeka," *Jurnal Studi Guru dan Pembelajaran*, vol. 4, no. 3, pp. 649-661, 2021.
[36] L. Holbeche, "The agile organization: How to build an engaged, innovative, and resilient business," 2023. https://www.amazon.com/Agile-Organization-Innovative-Resilient-Business/dp/1398608688
[37] C. Suntareeya, *Structural relationship of knowledge management towards learning organization, organizational agility, and competitive advantage of commercial banks in Thailand*. Bangkok, Thailand: Sripatum University, 2015.
[38] I. Kittiya and S. Raksitt, "The development of an agile organization management model in educational institutions," *Journal of Research for Sustainable Community Development*, vol. 11, no. 2, pp. 1–16, 2023.
[39] J. P. Keeves, *Educational research, methodology and measurement: An international handbook*, 2nd ed. Oxford, England: Pergamon Press, 1997.
[40] K. Beck *et al.*, "Manifesto for agile software development. Agile Alliance," 2001. http://agilemanifesto.org/
[41] PSI Solutions, "Agile leadership characteristics. PSI Solutions Thailand," 2019. https://www.psisolution.com/blog-thai/leadership/agile-agile-leadership/
[42] T. Sinthunok, "Agile leadership principles and practices in Thai organizations," Unpublished Master's Thesis, 1998.
[43] H. Sharifi and Z. Zhang, "A methodology for achieving agility in manufacturing organisations: An introduction," *International Journal of Production Economics*, vol. 62, no. 1, pp. 7-22, 1999. https://doi.org/10.1016/S0925-5273(98)00217-5
[44] J. Felipe, J. L. Roldán, and A. L. Leal-Rodríguez, "Measuring organizational agility: A systematic review of literature and a reference model," *Industrial Management & Data Systems*, vol. 117, no. 3, pp. 442–462, 2017.
[45] C. J. King and K. Mazzocco, "Multi-attribute consensus reaching methods: A survey," *International Journal of Approximate Reasoning*, vol. 28, no. 2-3, pp. 89–121, 2001.