

Strategies to Manage Vocational Education to Excellence

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Abstract

This research aimed to develop strategies to manage vocational education to excellence using the Research and Development (R&D) methodology. The study included two phases. Phase 1 involved analyzing fundamental data and needs for vocational education management. The sample was 206 school directors from eight types of vocational institutions under the Office of the Vocational Education Commission. The researchers determined the sample using Taro Yamane's formula (stratified random sampling) and interviews with experts from three selected model vocational institutions. Phase 2 involved creating strategies through discussions with experts from nine higher education and vocational institutions. Data analysis included percentages, means, standard deviations, and the modified Priority Needs Index (PNI_{modified}). Results showed that the current status of basic data was at a high level overall, while the expected status was at the highest level, with a PNI_{modified} of 0.179. The strategies for vocational education management towards excellence included: 1) Enhancing professional management efficiency; 2) Developing competency-based curriculum quality to international standards; 3) Improving teaching and learning quality; 4) Developing teacher and staff quality to specialized expertise; 5) Building comprehensive human resource development networks; and 6) Enhancing graduate quality to high-competency human resources. The evaluation of these strategies indicated that they were highly appropriate and feasible.

Keywords: Vocational Education Management Strategies, Excellence in Vocational Education

1. Introduction

The current global situation is changing rapidly and is more complex than before. The impacts of moving into the Fourth Industrial Revolution or Industry 4.0 have led to transformations across all dimensions, including business, investment, and daily life. Therefore, adapting to these challenges requires a crucial factor which is human resource capital that needs to be prepared for change (Office of the Prime Minister, 2017). The rapid technological disruptions of the 21st century, known as Technology Disruptions, have led to advancements, with multiple technologies enhancing daily life through artificial intelligence (AI). This shift influences future job changes, including which professions will increase or decrease and what new careers might emerge. Additionally, it affects the development of knowledge and skills necessary for future employment (Office of the Education Council, 2021).

These changes also impact national education management. Thailand faces rapid, complex, and unpredictable changes in the 21st century, while the educational outcomes at all levels remain problematic. The quality of Thai learners and graduates, in terms of academic achievement, characteristics, and skills, is still unsatisfactory. Moreover, the country's workforce skills do not match labor market and economic needs, thus requiring an educational system that provides quality lifelong learning opportunities to develop individual potential and advance the country from a middle-income trap to a developed nation (Office of the Secretariat of the Education Council, 2017).

The Office of Vocational Education Commission is responsible for managing vocational education to address the crises that have occurred (navigating external pressures from globalization and scientific and technological advancements) and internal pressures from demographic, environmental, economic, social, and political changes.

These factors affect the vocational education system and are critical for human resource development, which is the foundation for national development. Vocational education needs to adapt and improve to meet these challenges, enhancing the quality of students and graduates to align with the needs of employers, communities, and the labor market. In addition, it needs to build public confidence in vocational education graduates (Office of Vocational Education Commission, 2019). There is also a need to address labor shortages in various industries within the Eastern Economic Corridor (EEC), where demand for workers with appropriate knowledge, skills, and

abilities is high. In 2022, the tourism and health tourism industries had the highest demand for labor (24,596 people), followed by the modern automotive and agricultural biotechnology industries (21,897 people) (Office of Vocational Education Commission, 2021). By 2027, the demand for workers in the tourism and health tourism industries is expected to increase significantly (59,476 people), followed by modern automotive and agricultural biotechnology industries (47,732 people) (Office of Vocational Education Commission, 2021).

According to the importance and urgency addressed, there is a pressing need to develop vocational education quality through strategic development. This need involves creating effective strategies that are scientifically supported and based on real conditions and developmental analysis of vocational education across different contexts. These strategies should represent best practices or shortcuts to achieve objectives efficiently, using input factors and processes that produce excellent vocational education outcomes.

This research aimed to study the basic needs for excellent vocational education management and to develop strategies for achieving excellence in vocational education for institutions under the Office of the Vocational Education Commission. The research framework included the components of strategies for excellent vocational education management that the researchers synthesized from relevant documents and studies (See Figure 1).

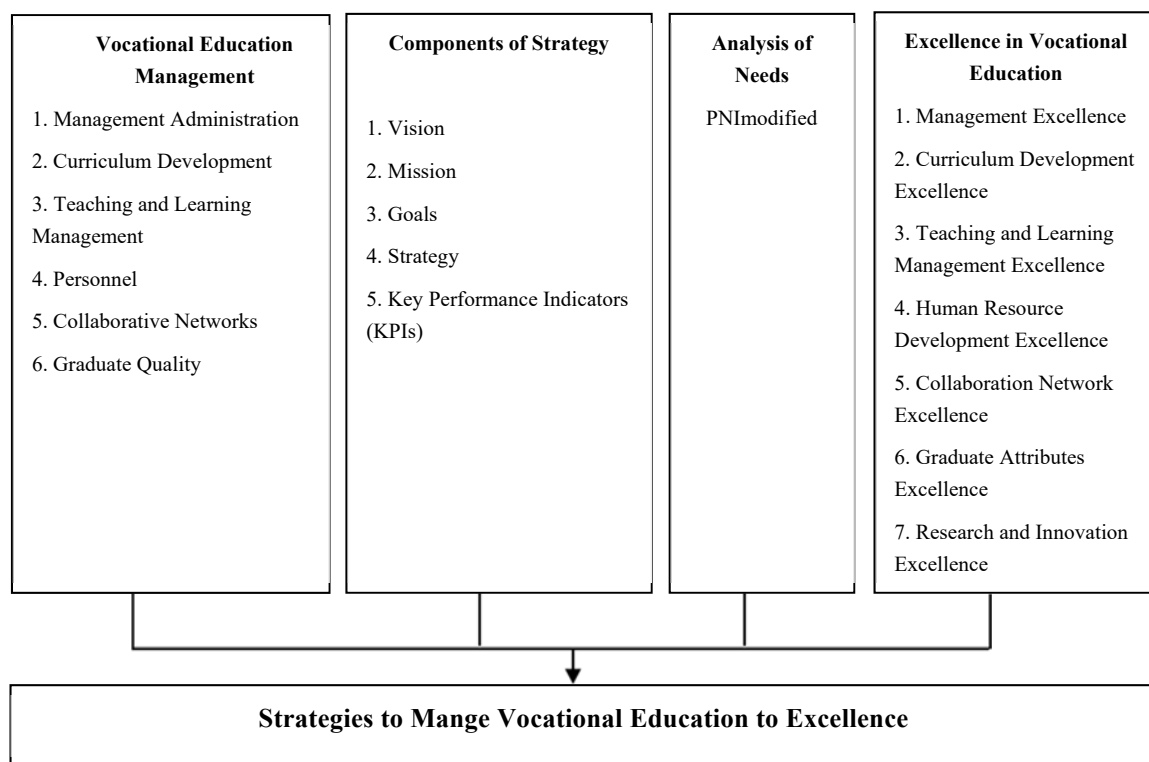


Figure 1. The research framework of strategies to manage vocational education to excellence

2. Method

The researchers used the Research and Development (R&D) methodology to conduct this research. The research process consisted of two phases. Phase 1 investigated the fundamental data and necessary needs for managing vocational education towards excellence. In addition, Phase 2 developed a strategic framework for vocational education excellence.

2.1 Phase 1: Investigating the Fundamental Data and Necessary Needs for Managing Vocational Education Towards Excellence

In this phase, the researchers analyzed and synthesized documents, concepts, theories, relevant research, and components to establish a conceptual framework for developing strategies to manage vocational education toward excellence. A questionnaire was designed to collect preliminary research data. This draft questionnaire was reviewed and evaluated by five experts to assess content validity, with the Index of Item Objective Congruence (IOC) values ranging from 0.80 to 1.00. Additionally, the quality of the complete questionnaire was tested with a

sample of 50 individuals who were not part of the main research sample to determine the questionnaire's reliability using Cronbach's Alpha Coefficient (α). The reliability coefficients were 0.987 for the current condition and 0.983 for the expected condition.

The finalized questionnaire was then used to gather data on the need for managing vocational education toward excellence. The researchers sent a request for data collection to the target group using an electronic document system (E-office), aiming to collect data from 424 educational institutions under the Office of Vocational Education Commission across eight types of institutions nationwide. The researchers determined the sample size using Taro Yamane's formula (Yamane, 1973, pp. 727–728), and stratified random sampling, resulting in a sample of 206 respondents.

Data on needs from the current and expected conditions were analyzed using mean (\bar{x}), standard deviation (S), and the modified priority needs index (PNImodified) (Wongwanich, 2015), along with SWOT Analysis and strategy formulation using a SWOT Matrix. The identified strategies included: 1) Enhancing professional management efficiency; 2) Developing competency-based curriculum quality to international standards; 3) Elevating the quality of teaching and learning to excellence in vocational education; 4) Developing teacher and staff quality towards professional expertise; 5) Building a comprehensive network for vocational education personnel development; and 6) Improving the quality of graduates to high-performance personnel.

Subsequently, the researchers examined the approaches to managing vocational education from three exemplary vocational education institutions (under the Office of Vocational Education Commission) that demonstrated best practices. These institutions were: 1) Udonthani Vocational College, Udonthani Province; 2) IRPC Technology College, Rayong Province; and 3) Chachoengsao Technical College, Chachoengsao Province.

The researchers used purposive sampling for structured interviews with directors, deputy directors, teacher representatives, and representatives from partner enterprises, focusing on strategy, goals, indicators, and implementation methods for successful vocational education management strategies. Data were analyzed using content analysis.

2.2 Phase 2: Developing a Strategic Framework for Vocational Education Excellence

In this phase, the researchers synthesized the findings from Phase 1 to draft a strategic framework. Then draft was evaluated for appropriateness and feasibility through focus group discussions with nine experts. The researchers analyzed data using mean (\bar{X}) and standard deviation (S) and edited draft strategy based on expert feedback until a comprehensive and feasible strategy was achieved. Additionally, the appropriateness of the strategy implementation manual was assessed through focus group discussions with the same group of nine experts. The evaluation results were analyzed using mean (\bar{X}) and standard deviation (S). Then the researchers edited the manual according to the experts' suggestions until a complete and appropriate strategy manual was developed.

3. Results

The research study consisted of two phases: Phase 1 investigated the basic data on the requirements for managing vocational education towards excellence and Phase 2 involved the development of strategies for managing vocational education towards excellence.

3.1 The Results of the Study on the Basic Data Regarding the Current Conditions, the Desired Conditions, and the Index of Requirements for Managing Vocational Education Towards Excellence

Overall, the current conditions were high level while the desired conditions were at the highest level. The evaluation of the requirements for managing vocational education towards excellence showed that the overall Index of Necessary Requirements (PNImodified) was 0.179. When considering the requirements by category, the category with the highest Index of Necessary Requirements was Curriculum Development (PNImodified = 0.198). This is followed by the category of Cooperation Networks (PNImodified = 0.196), Personnel (PNImodified = 0.193), Teaching Management (PNImodified = 0.173), Graduate Quality (PNImodified = 0.160), and Management (PNImodified = 0.149), respectively.

3.2 Results of Developing Strategies for Managing Vocational Education Towards Excellence

Researchers developed strategies for managing vocational education towards excellence by synthesizing the results in Phase 1 and drafting the strategies reviewed by experts. The results showed that the strategies for managing vocational education towards excellence include the following components.

3.2.1 Vision

Managing vocational education toward excellence aimed to produce and develop highly competent human resources through modern curricula and innovative learning management. The strategy involved expanding

effective cooperation networks that align with the needs of employers and target industrial sectors for national development.

3.2.2 Mission

- 1) Developing management through modern technology systems towards creating effective digital educational institutions and providing flexible and diverse vocational education management that covers all target groups equitably.
- 2) Elevating the quality of curricula and learning management by linking professional standards to all levels of vocational qualifications, in alignment with the needs of the labor market and international standards.
- 3) Promoting and developing the potential of vocational education teachers and staff to gain experience and expertise in specialized professions.
- 4) Enhancing cooperation networks with employers, government agencies, private sectors, and capable industrial groups to improve the quality of vocational education management toward excellence.
- 5) Producing and developing highly competent vocational education personnel with diverse technologies and professional learning resources; creating innovative works, research, or inventions for practical use and commercialization; and instilling ethics, morality, and desirable characteristics in students and graduates of vocational education.

3.2.3 Objectives

- 1) The educational institution is managed with modern, efficient, transparent, and accountable administration, and vocational education management that reaches all target groups equally and comprehensively, meeting quality standards according to international standards.
- 2) The institution develops curricula and learning management with innovative and modern technology that aligns with the needs and advancements in professional fields.
- 3) Teachers and staff possess knowledge, competencies, and expertise in specialized professional fields, certified by internationally recognized professional qualification institutions.
- 4) Resource mobilization for quality vocational education management in collaboration with a network of partners from leading industry groups with potential
- 5) Graduates possess professional competencies that meet vocational education standards at all qualification levels, with ethics, morality, and professional conduct that meet the demands of the labor market with quality.

3.2.4 Strategies

Strategy 1 included enhancing the effectiveness of professional management. The indicators included the evaluation results of the institution's status as a 4.0 government system (PMQA 4.0) at an excellent level (according to the criteria of 400–499 points) and the evaluation results of budget management according to the percentage criteria set by the acceleration measures for budget disbursement and public expenditure, specified in four quarters of the fiscal year.

The methods consisted of 1) Developing management quality based on principles of good governance and standard public administration that are widely accepted; 2) Promoting the production and development of human resources in professional fields aligned with the development directions of target industry groups and the needs of employers; 3) Promoting proactive public relations to reach all target groups and provide equal opportunities for vocational education based on demand; 4) Managing the institution with digital technology (Digitalization) by developing a Digital Platform that supports educational management and allows teaching and learning anytime and anywhere; 5) Managing learning resources and elevate professional quality in training to develop human resource competencies through Upskilling/Reskilling/New Skilling towards a professional qualification system.

Strategy 2 included developing the quality of competency-based curricula to international standards. The indicators included: 1) The quality level of curriculum development in collaboration with employers in professional fields that align with the needs and direction of national target industry development and 2) Professional fields have systematically developed competency-based curricula with an outcome-based education (OBE) approach, with at least 80% or more.

The methods included: 1) Developing the quality of vocational curricula to align with the community context, being flexible, diverse, and up-to-date with modern technological changes; 2) Promoting the development of professional qualifications for the workforce in the industry in collaboration with employers to enhance competencies and create national competitiveness; 3) Developing the quality of dual vocational education

management curricula to meet the demand for high-competency workforce in the country's target industries; 4) Developing the quality of course curricula in collaboration with employers, linked to professional standards and qualifications at all levels according to international standards; and 5) Enhancing the quality of competency-based curricula by improving learners' analytical thinking, problem-solving skills, and essential competencies required in the 21st century.

Strategy 3 included elevating the quality of teaching and learning management to excellence in vocational education. The indicators included: 1) The quality level of vocational education teaching and learning management is classified as an Excellent Center with a very high-quality rating; 2) There are innovations resulting from diverse and high-quality learning management practices; and 3) Learners possess knowledge, skills, desirable attributes, and competencies according to the specified professional standards.

The methods were 1) Developing the quality of teaching and learning with a focus on active learning, in collaboration with specialized professional experts from both educational institutions and employers on an ongoing basis; 2) Enhancing the quality of teaching and learning management systems for accumulation, credit transfer, and credit banking that cater to all target groups and age ranges; 3) Increasing capabilities in English and other languages by involving foreign language experts from outside to develop learners; and 4) Developing teaching and learning management through the creation of a digital learning platform and diverse, high-quality methods for assessing and evaluating learners.

Strategy 4 included developing the quality of teachers and staff towards expertise in specialized professions. The indicators included: 1) Teachers can produce digital content and use it in teaching and learning with a digital learning platform effectively and 2) Teachers have been certified through performance evaluations based on professional standards by recognized professional qualification institutions or skill standards institutes, or have obtained a professional license from internationally recognized certification bodies, and have developed according to criteria set by the Teacher and Educational Personnel Council (OPEC).

The methods consisted of 1) Promoting the development of teachers and staff to build competencies and specialized expertise in collaboration with potential employers; 2) Enhancing the quality of teachers by ensuring they receive a certification of competencies according to professional standards from internationally recognized institutions; 3) Increasing the ability of teachers to produce digital content for use in teaching and learning with a digital learning platform effectively; 4) Improving the capacity of teachers to deliver high-quality education in English Programs (EP); and 5) Promoting the creation of organizational culture and improve the quality of life for staff in educational institutions.

Strategy 5 included building a comprehensive network for developing a vocational education workforce. The indicators included: 1) Participation of government, private sector, and industrial organizations, both domestically and internationally, in networks for developing vocational education workforce capacity and 2) Quality level of high-standard dual vocational education management systems.

The methods consisted of 1) Developing the quality of collaboration networks between educational institutions and leading industrial employers for dual vocational education management to produce a high-competency workforce aligned with labor market needs; 2) Expanding collaboration networks between educational institutions and domestic or international higher education institutions for academic exchange and resource sharing among teachers, staff, students, and learners; 3) Driving resource mobilization from community stakeholders or industrial groups in a regional context to support continuous vocational education management; 4) Creating a collaboration network for developing comprehensive innovation and advanced technology learning resources; and 5) Promoting the use of digital technology to connect information services related to workforce and labor market needs for educational institutions and employer networks.

Strategy 6 included developing the quality of graduates to a high-competency workforce. The indicators consisted of 1) Employer satisfaction with the quality of graduates' professional competencies and desirable attributes in line with labor market needs and 2) Graduates are certified according to professional standards by recognized agencies and have employment rates in enterprises of 85% or more.

The methods included: 1) Building a foundation for developing ethics, morality, and desirable attributes of learners and citizenship; 2) Enhancing learners' quality with up-skilling training programs to prepare them effectively for the labor market; 3) Improving learners' capabilities in scientific learning processes through various active learning activities; 4) Developing learners' desirable attributes through innovations to prepare them for careers and entry into the labor market; and 5) Providing specialized competency training for learners through the Vocational Education Workforce Production and Development Network Management Center (CVM).

3.3 Assessment Results on the Suitability and Feasibility of the Vocational Education Management Strategies for Excellence

According to a focus group discussion with experts, it was found that the overall suitability of the strategies was at the highest level, and their feasibility was also at the highest level.

4. Discussion

According to the results of the present study on strategies for achieving excellence in vocational education management, the following key points are highlighted for discussion:

The results related to addressing the first research objective showed that the study of the foundational data for achieving excellence in vocational education (by examining the necessity index from the current and expected conditions of vocational education management for institutions under the Office of the Vocational Education Commission across eight types of institutions nationwide) showed that the current overall conditions and specific aspects were at a high level, while the desired conditions were at the highest level.

The top three rankings of the necessity index included: 1) Curriculum Development; 2) Collaboration Networks; and 3) Personnel. This is due to the rapid technological advancements and disruptions of the 21st century, where various technologies, including AI, are increasingly replacing labor and creating convenience in daily life. These changes impact future careers and the development of relevant knowledge and skills necessary for future employment. These results align with the implementation of policies through the Eight Agenda (Office of the Vocational Education Commission, 2023); especially Agenda 3 (Enhancing the quality of high-competency vocational education management). This agenda includes: 1) Expanding and elevating the dual vocational education system (DVE for All); 2) Strengthening collaboration with the private sector (Active MOU/MOA); 3) Improving the quality and life skills of vocational education learners across all dimensions; 4) Promoting Active Learning teaching methods; and 5) Supporting the development of innovations, research, and inventions.

Additionally, the present study's results also align with Agenda 7 (Increasing the efficiency of personnel management and administration). This agenda includes: Developing the potential of high-competency vocational education teachers and staff; adhering to principles of good governance, and effectively preventing; and combating corruption through the use of digital technology in management. These results are consistent with the research by Sommut (2020) on the future of vocational education management in the digital era for institutions under the Office of the Vocational Education Commission. Sommut found that for curriculum development, there was a need to modernize curricula to align with the new world and to develop dual vocational education curricula based on competency standards. Sommut also found that for the collaboration networks, collaboration with stakeholders in developing and managing education with institutions was essential. Finally, he addressed that the personnel development for enhancing the quality and professional standards of teachers and educational personnel to become professional educators, including gaining experience in enterprises to build expertise in specialized fields.

The results from the present study were also consistent with Teerasawasdi's (2015) study that studied the future of Thai private vocational education in the ASEAN community from 2015 to 2027. The study highlighted that private vocational graduates needed to develop and enhance their skills and competencies according to professional standards and qualifications that meet labor market demands. Additionally, private vocational teachers must continuously develop their ability to convey skills and professional experiences, participate in training with enterprises, and demonstrate a strong commitment to the teaching profession and being a good role model.

Moreover, the results from the present study aligned with the research by Khoriklang (2021) that proposed strategies for managing education to meet the workforce demands and educational needs of learners in the Eastern Economic Corridor (EEC). The recommendations included systematic coordination in vocational education management to produce skilled personnel, requiring continuous collaboration with network partners in the EEC area. There was a clear reflection of mutual benefits among stakeholders and effective coordination, such as EEC-HDC acting as the primary coordinator and expanding the organization to accommodate the growing industrial sector in the area.

The results related to addressing the second research objective showed that the strategies for achieving excellence in vocational education include: 1) Vision 2) Mission 3) Goals 4) Strategies, and 5) Indicators.

The main strategies comprised six key areas. The results from the focus group discussion with experts regarding the appropriateness and feasibility of these strategies indicated that the strategies for achieving excellence in vocational education were deemed highly appropriate and feasible.

These results were consistent with the research by Chonnithi (2015) that studied strategic planning. This strategic planning consisted of five interrelated components: 1) Vision, 2) Mission, 3) Goals, 4) Strategy, and 5) Indicators.

The present study's results also aligned with the research by Daoreung (2019) that investigated strategies for achieving excellence in private educational institutions in the lower northeastern region of Thailand. The findings showed that the strategies for achieving excellence in these private institutions included four main strategies: 1) Planning Strategy, 2) Organizational Management Strategy, 3) Leadership Strategy, and 4) Monitoring and Evaluation Strategy. These strategies also included 19 sub-strategies. The evaluation of these strategies for achieving excellence in private educational institutions in the lower northeastern region showed that both the appropriateness and feasibility were at the highest level.

5. Recommendations

Based on the results of the present study, the researchers highlighted two main recommendations: one for the application of research findings and another for future research.

5.1 Recommendations for Applying Research Findings

1) School administrators and relevant stakeholders should plan the implementation of strategies effectively, particularly in Strategy 2 (Developing Competency-Based Curricula to International Standards). This involves executing the plan with efficiency and effectiveness to achieve the goals and indicators. The research results indicated that the need to develop competency-based curricula to international standards was a high-priority area and a weakness in the internal environment of vocational education management towards excellence. Therefore, it is crucial to accelerate proactive strategies to develop quality competency-based curricula to meet international standards and address external environmental obstacles. This includes adapting curricula to keep pace with economic and technological advancements and meeting current and future educational needs.

2) Regarding the implementation of strategies, when applying the strategies, adjustments may be necessary to align with the specific context and needs of each vocational education institution aiming for excellence. Since the strategies are based on research findings, administrators and relevant staff should first analyze their institution's needs for achieving excellence in vocational education. They should then develop methods or approaches that address the institution's weaknesses, strengths, opportunities, and threats. The strategies derived from the research should be integrated appropriately with the institution's existing plans, projects, and activities. This will ensure that the strategies are effectively used as guidelines or principles for achieving excellence in vocational education.

5.2 Recommendations for Future Research.

5.2.1 Curriculum Development Models

Future research should focus on developing models for curriculum design that align professional competencies with educational qualification systems. This involves creating frameworks that integrate vocational skills with academic standards, ensuring that educational programs meet industry needs and qualification criteria.

5.2.2 Digital Content Production and Professional Competency

Future studies should also investigate and develop methods to enhance personnel's abilities in producing digital content. Additionally, research should explore ways to ensure that individuals meet competency standards set by internationally recognized professional qualification institutions. This includes assessing and improving their skills to align with global standards and industry requirements.

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Authors' contributions

Dr. Puttawat Kanyakan and Dr. Chuankid Masena were responsible for the study design, data collection, and manuscript revisions. In addition, Dr. Phongthon Singhaphan and Dr. Somruthai Taochan drafted the manuscript. Finally, Dr. Nares Khantharee provided critical revisions. All names mentioned have read and approved the final manuscript and contributed equally to the study.

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The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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