

THE LITERATURE REVIEW ON KEY COMPONENTS OF HIGHER EDUCATION INSTITUTION MANAGEMENT AIMING FOR EXCELLENCE IN TECHNOLOGY DEVELOPMENT AND INNOVATION

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ABSTRACT

This article presents a literature review on the key components of higher education institution management aimed at achieving excellence in technology development and innovation. The review synthesizes research from international databases published between 2007-2024, integrating essential concepts, theories, and indicators in relevant to higher education institution management in this context. The findings identify eight primary components and their sub-components as follow: 1) Process management – encompassing work system design, work process auditing, and work process development; 2) Staff focus – including workforce planning, workforce development, workforce engagement, and workforce environment; 3) Strategic planning – covering strategic formulation, strategic plan formulation, strategic plan implementation, and strategy monitoring and evaluation; 4) Innovative leadership – consisting of innovative vision, creativity thinking, innovation organization, change leadership, and risk management; 5) Student and stakeholder focused – addressing students and stakeholder needs and expectations, as well as their relationships with the institution; 6) Results focused – incorporating students learning results, process effectiveness and efficiency results, students and stakeholders focused results, workforce focused results, leadership and governance results, and budgetary, financial, marketplaces and strategy results; 7) Knowledge Management – involving knowledge identification, knowledge sharing, knowledge application, knowledge creation, knowledge utilization, and knowledge storage; and 8) Resource Management – covering both in-kind and in-cash resources. These core components and sub-components provide a comprehensive framework for analyzing higher education institution management practices. These core components and sub-components have been recognized for use in research to conduct confirmatory factor analysis by examining the alignment between the theoretical model and the empirical model in future studies.

Keywords: Higher education management, Excellence in Technology development and innovation

INTRODUCTION

In the era of rapid technological advancement and global competition, higher education institutions (HEIs) play a crucial role in fostering innovation and driving technological development. Excellence in technology development and innovation is no longer an option but a necessity for HEIs to remain competitive, contribute to national development, and address emerging societal challenges. Effective management of HEIs is a key determinant of their ability to achieve these goals, requiring a well-structured framework that integrates process management, strategic planning, leadership, and resource optimization. Despite the growing recognition of these factors, there remains a need for a comprehensive understanding of the essential management components that contribute to institutional excellence in technology and innovation.

This study aims to bridge this gap by reviewing existing literature on the key components of HEI management that facilitate excellence in technology development and innovation. By synthesizing findings from research published between 2019 and 2024, this review provides insights into the fundamental management elements that influence institutional success. The analysis highlights eight core components, including process management, strategic planning, innovative leadership, and knowledge management, among others. Understanding these elements is essential for policymakers, administrators, and educators seeking to enhance institutional effectiveness and foster an environment conducive to innovation. This article, therefore, serves as a foundation for future research and practical applications in higher education management.

METHODOLOGY

In order to synthesize key concepts, theories, and indicators related to the management components of higher education institutions that drive excellence in technology development and innovation, this study employed a systematic literature review approach to synthesize key components of higher education institution management aimed at achieving excellence in technology development and innovation. The research process involved an extensive review of theories, concepts, and empirical studies from academic scholars, researchers, and relevant organizational perspectives. The analysis focused on two primary domains: (1) management principles of higher education institutions that emphasize technology development and innovation, and (2) management approaches that drive institutional excellence. To ensure the reliability of the synthesized components, a selection criterion was applied, wherein only concepts and indicators demonstrating a consistency rate of at least 70% across the reviewed literature were considered for inclusion. These selected components formed the foundation for constructing the conceptual framework of this research, which will be further validated in subsequent studies.

RESULTS

The synthesis of key components for higher education institution management aimed at achieving excellence in technology development and innovation promotion identified eight core components. These components were derived based on the alignment of concepts across relevant literature, with a consistency rate of at least 70%. The identified components and their details are presented in Table 1, which outlines the key elements that contribute to effective institutional management in this context.

Table 1
Synthesis of Key Components in Higher Education Institution Management Towards Excellence in Technology Development and Innovation Promotion

No.	Name of Organization/Academic/ Researcher	Innovative Leadership	Strategic Planning	Corporate Culture	Organizational Structure	Resources Management	Process Management	Excellence Practices	Staff Focused	Students and Stakeholders Focused	Productivity Focus	Results Focus	Knowledge Management
1	SAI Global [1]	✓	✓	-	-	✓	✓	-	✓	✓	-	✓	✓
2	Arjomandi [2]	-	✓	-	-	✓	✓	-	✓	✓	-	✓	
3	Europe Association for Quality Assurance [3]	✓	✓	-	-	✓	✓	-	✓	✓	-	✓	✓
4	Ab Hamid [4]	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-
5	Loaiza [5]	✓	✓	✓	✓	✓	✓	-	✓	✓	-	✓	✓
6	Mykhailyshyn [6]	✓	✓	✓	✓	✓	✓	-	✓	✓	-	✓	✓
7	SPRING Singapore [7]	✓	✓	-	-	-	✓	-	✓	✓	-	✓	✓
8	ISO 56002 [8]	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
9	Aniruth [9]	✓	✓	✓	✓	✓	✓	-	✓	-	-	✓	✓
10	National Institute of Standard and Technology [10]	✓	✓	-	-	-	✓	-	✓	✓	-	✓	✓
11	Sharma [11]	-	-	-	-	-	✓	-	✓	-	-	-	-
12	Shaposhnykov [12]	-	-	✓	✓	✓	✓	-	-	-	-	-	-
13	Europe Quality Award [13]	✓	✓	✓	-	✓	✓	-	✓	✓	-	✓	-
14	EFQM-Hamdani Education Model [14]	✓	✓	-	-	✓	✓	-	✓	✓	-	✓	✓
	Frequency	11	12	7	6	11	14	2	13	11	2	12	9
	Rank	4	3	6	7	4	1	8	2	4	8	3	4
	Percentage	79	86	50	43	79	100	14	93	79	14	86	64

Table 1 presents the synthesis of key components in higher education institution management aimed at achieving excellence in technology development and innovation promotion. The findings indicate that eight components were identified, ranked in descending order based on frequency percentage as follows: 1. Process Management – 100%, 2. Staff Focus – 93%, 3. Strategic Planning – 86%, 4. Results Focus – 86%, 5. Innovative Leadership – 79%, 6. Student and Stakeholder Focus – 79%, 7. Knowledge Management – 72% and 8. Resource Management – 72%. The synthesis of key components for higher education institution management aimed at achieving excellence in technology development and innovation promotion identified eight core components. These components were derived based on the alignment of concepts across relevant literature, with a consistency rate of at least 70%. The identified components and their details are presented in Table 1, which outlines the key elements that contribute to effective institutional management in this context. Both the eight identified components exhibit conceptual alignment and share a consistency rate of at least 70%. Based on these findings, the researcher has established a conceptual framework for the study, as illustrated in Figure 1 below.

Figure 1
Synthesis of Key Components Forming the Conceptual Framework for This Study

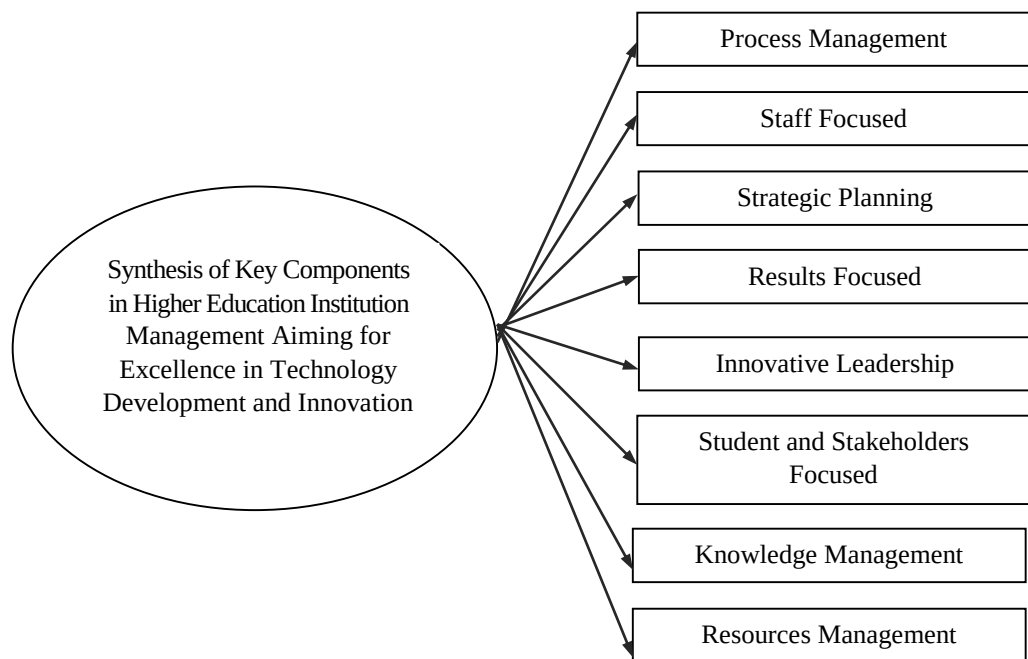


Figure 1 illustrates the synthesis of key components, which have been formulated into the conceptual framework for this research.

CONCLUSION AND FUTURE WORK

This study synthesized key components of higher education institution management aimed at achieving excellence in technology development and innovation promotion. By reviewing relevant theories, academic research, and organizational perspectives, the study identified eight core components with a conceptual alignment of at least 70%. These components include process management, staff focus, strategic planning, results focus, innovative leadership, student and stakeholder focus, knowledge management, and resource management. The synthesis of these elements provides a structured framework for enhancing institutional effectiveness in fostering innovation and technological advancement.

The findings contribute to the body of knowledge by offering a comprehensive framework that integrates critical management aspects necessary for institutional excellence. This framework can serve as a guideline for policymakers, administrators, and educators in designing management strategies that align with global trends in higher education. Furthermore, the study establishes a conceptual foundation

for future empirical research. The management components identified in this study align with Thailand's national higher education reform agenda, particularly for higher education institutions classified under Group 2: Technology Development and Innovation as specified in the Ministerial Regulation on the Classification of Higher Education Institutions B.E. 2564 (2021), which came into effect on March 25, 2021 [15]. The emphasis on technological and innovation excellence in higher education institutions is crucial for producing graduates who meet national development needs. Additionally, these institutions serve as a key driving force in strengthening Thailand's economic growth and global competitiveness. By enhancing their management systems, higher education institutions can better contribute to the nation's transition towards a knowledge-based and innovation-driven economy.

As a direction for future work, further studies would conduct confirmatory factor analysis (CFA) to validate the alignment between the theoretical framework and empirical data. This will ensure that the synthesized components are statistically robust and applicable in real-world higher education management contexts. Additionally, qualitative and quantitative research would be conducted further to examine the practical implementation of these components across various institutional settings. By advancing this research, higher education institutions can develop evidence-based strategies to strengthen their role in technology development and innovation, ultimately contributing to sustainable national and global economic growth.

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