ISO Standard Application in University Management Model: A Case Study

Tran Vi Anh, Nguyen Thi My Linh, Ho Thi Thao Nguyen, and Truong Cong Duan

Abstract—**The ISO standards have been traditionally used in the business context, specifically in manufacturing and services, to provide a framework for total quality management. Such application has now been found in the context of higher education; thus, this paper aims to look into the implementation of ISO standards in the management of a private university in Vietnam. Using a desk research approach, the study seeks to detail the application of ISO in the areas of educational support system and business operation system in the strategic management of this institution, showing the quantitative operational results that have been achieved in all aspects of HR management, teaching quality, new enrollment number and financial growth.**

Index Terms—**Higher education, quality management, school management, strategic management.**

I. INTRODUCTION

Higher education is facing various challenges posed by both environmental forces as well as internal factors. As a result, a number of models for strategic management and leadership have been proposed for effective application in the context of higher education, among which is the ISO set of standards which has been traditionally applied in manufacturing and services. ISO standards are increasingly being adopted by higher education institutions as they provide the guidelines for quality management.

FPT University is a private higher education institution based in Vietnam, with campuses in major cities in the country including Hanoi, Ho Chi Minh City, Da Nang, and Can Tho. As the first university founded by a private corporation in Vietnam, the university has applied the ISO 9001 standards in quality and process management for both its educational support system and business operations system. This application has brought about concrete and considerable results, which are further discussed in this paper.

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Higher education (HE) in contemporary times has been facing a number of challenges, including greater autonomy, increasing competition to attract students, increasing education costs, as well as environmental factors like technological advancements, industry globalization [1], changing expectations and diversifying needs of stakeholders and the trend towards privatization, all of which have facilitated the need for improved practices in management and leadership in higher education institutions (HEIs) [2]. Despite the growing importance of effective management and leadership practices in higher education, HEI management and leadership as concepts are often subject to confusion and misunderstanding, and thus are extensively debated within academia [3].

According to Taylor & Machado (2006) [3], when referring to management, contemporary discourse often meant strategic management, which is defined as a science and an art, consisting of the formulation, implementation and evaluation of cross-functional decisions to enable an organization towards the fulfillment of its objectives. It is a holistic process comprising various components that must interact and function effectively together, composing of institutional culture; strategic planning; leadership; institutional research, resource allocation and financial management; personnel and human resources management; research and scholarly activity; student and campus support services; academic support services; internationalization; and external relations.

Castro *et al.* (2017) [4] proposed a strategic model for university management by analyzing best practices in 12 areas, 28 features, 111 standards of quality, 188 indicators and 937 evidences. The model postulates that there are six functions that form the strategic axes for excellence in university management, which are administrative management, teaching, student progress, support services, research, and university social importance.

According to Sharma, Tiwari & Anjum (2013) [2], the management of institutions in the public and private sector can be classified into a continuum based on five different dimensions, namely: mission or purpose, ownership, source of revenue, control by government, and norms of management. Those dimensions create school culture [5]. Institutions with high privateness are characterized based on these dimensions as follows: their mission serves the private interests of students, clients, and owners; they are for-profit; revenue is also private and mainly tuition-dependent; controls are limited to those over any other business; and the institutions are operated like a business with norms from management.

According to Ekman, Lindgren & Packendorff (2018) [6], over the years, forms of management in the academic sector

have been influenced by: 1) the "collegial form" which is the classic form in the school system and older government authorities; 2) the board of directors, a form that is found in private corporations, non-governmental organizations and some governmental authorities, whose members are recruited on the basis of their relationship to external perspectives and competencies; 3) the "internal-democratic form", based on the representative balance among stakeholder groups including teachers, students and other employees; and 4) CEOs of private companies and monocratic managers in the public sector, forming the governance style that puts the focus on active leadership by an action-oriented head of school with the support from an active management team.

However, according to Yielder & Codling (2004) [7], since the 1990s, there has been a shift in how HEIs are managed, from collegial to managerial structures, meaning that the traditional managerial structure of the university is being replaced by a more corporate management model. The growth of the so-called "managerialism" in HEIs was indicated by three main factors as following: 1) the growing influence of external stakeholders, especially those that have power over the income of the institutions, 2) strong emphasis on institutional strategic planning, and 3) adoption and adaption of the techniques and attitudes which are typical features of the corporation.

On the other hand, while there is no universally accepted definition of leadership [8], it is a collective concept that involves various important social, organizational, and personal processes, including influence and inspiration towards common goals through personal motivation, not coercion [9]. It is up to the organization and/or the leader to choose one definition that is based on their tendencies, beliefs and the practical situation while being aware of their approach's underlying implications and assumptions [9].

In the literature, there are the terms "academic" and "managerial" leadership that are used to describe the fulfillment of different aspects of leading or decision making; while both serve the objectives of providing vision, directions, purposes, and goals for the future, they have some different features, as summarized by Yielder & Codling (2004) [7] as follows: Academic leadership is an authority which is based on knowledge of the discipline, experience, peer and professional recognition, personal qualities, expertise in research, teaching, and programme development, and team acceptance. Leadership is bestowed from below, based on the collegial leadership context, and is vested in the individual thanks to personal characteristics and perceived expertise. On the other hand, in managerial leadership, the leader is in authority, with the basis in hierarchical position, job responsibilities, control, delegated authority, and power. Leadership is appointed from above, based on the corporate leadership context, and is vested in the position, meaning the individual may or may not be capable of exercising this leadership. Indeed, Durie & Beshir (2016) [10] suggested that faculty members are promoted to a senior position based on their in-depth knowledge in their field, experience, and scientific achievements, not leadership skills, which leads to some senior faculty holding positions of leadership without sufficient preparation. In order to strive for effectiveness in leadership in HEIs, there needs to be leadership in teaching, leadership in research, strategic networking and vision, transformational and collaborative leadership, fair and efficient management, performance development and recognition, and interpersonal skills [10]. Although HEIs have their own distinct characteristics, it increasingly accepted that the tools and principles of general management should be adopted for continuous improvement, with strategic management and strategic planning being important concepts to be pursued by the higher education sector [3].

In order to cope with the growing challenges in both the external environment and strategic management and leadership at the institutional level, there was not only the significant need and but also the requirement of using systems of quality management standards in higher education management [11]. Quality management systems were proposed as a way to address concerns regarding the efficiency, education quality and accountability [12]. Quality management requires the presence of a proper organizational structure allowing the implementation of the quality system, which is determined by the quality of the processes taking place at the institution and the quality of its services [13]. One such quality framework increasingly being adopted by HEIs is the ISO quality management system, which is a set of standards that can bring such benefits as improving the control and monitoring of activities, and enhancing effective management within the institution, among others [14], to implement such a quality management system successfully, first of all, institutions need the commitment and sponsorship from top management. Secondly, there needs to be an emphasis on employee empowerment and involvement. Effective communication to stakeholders and a facilitating organizational culture are also important factors. In terms of organizational structure, Wahid (2019) [14] suggested that the speed of implementation of a quality management system may be slowed by more bureaucracy in the decision-making process. According to Dumond & Johnson (2013) [15], unlike accreditation like the AACSB for business schools, the ISO standards present a quality assurance approach with specification in the requirements for the planning, implementation, and management of a quality management system, as opposed to containing specific quantitative standards or benchmarks. Such flexibility offered by ISO allows HEIs to identify its own key processes and set performance standards that are most appropriate for the organization. The role of external auditors is also a difference, as ISO audits are based on the compliance to the standard itself rather than individual perspectives, thus allowing for more consistency. Furthermore, ISO is more process-oriented as opposed to being outcome-oriented or prescriptive in nature. The internal audit process of ISO differs from accreditation as it requires the identification and training of a group of internal auditors, and the implementation of audits within the organization, enabling the institution to be familiar with the standards while taking corrective action if necessary. The organization reserves the autonomy to choose its own certifying body and often its own specific auditors. The final distinction lies in the breadth of applicability of the process, as ISO is meant to be applicable worldwide regardless of cultural context, product, service, industry, or size, thanks to its process orientation.

II. IMPLIMENTATION OF ISO STANDARD SYSTEM IN FPT UNIVERSITY

A. ISO System in FPT University

Since the early days of FPT University (FPTU) establishment (2006), FPTU has followed the ISO 9001 Standards for its internal quality system. ISO Standards was known to be mainly applied for productive or business companies rather than for education institutions. However, FPTU belongs to a leading ICT, FPT Corporation that has applied ISO standards for all business sectors. Currently, FPT University has followed the ISO 9001:2015 Standards. To run this ISO system effectively and sustainably, a functional department was established, called Quality Assurance (QA) department. The QA department was aimed to support and assess the actions by process for all related departments.

The heart of this quality assurance system is that all activities have been implemented following the official documents written by People in charge (PIC) of the related activities and then have been evaluated and verified by the quality assurance department (QA). Then action and supervision will be done based on the issued procedures. Each procedure is normally designed based on some key inputs: i) requirements from the Vietnam Ministry of Education and Training (MOET); ii) the accreditation bodies those FPTU were accredited or desire to follow; iii) the educational or professional organizations those FPTU is membership such as CDIO and QS-Star; iv) the requirements from the stakeholders. Submit your manuscript electronically for review.

B. Policy

ISO system is guaranteed to be implemented successfully when there are necessary supporting policies as following: 1) There are strong support of the top managers; 2) The top manager takes place in the implementation of the ISO system; 3) There is a reward or penalty for good or missed following the process; and 4) The university graduate reviews and updates the process to improve and meet the practical situations.

To ensure the internal education quality, FPTU QA Department and each department regularly implement following activities based on the Plan-Do-Check-Act (PDCA) Cycle: i) Developing procedures and documents for learning and teaching activities; ii) Conducting stakeholder surveys and collecting feedback regarding curriculum, learning material, required skills, and academic/administrative processes (Stakeholder include Student, Alumni, and Employer); and iii) Conducting the regular feedback on the faculty members (Grade Point Average - GPA from students and Checkpoint from his/her line managers) and peer assessment to point out the outstanding faculty member.

C. Practicing of FPT University's Management System

FPT University' management system can be divided into 2 systems as follows: Educational support system and business operation system.

FPT University's educational support system: The educational support system monitors its students from the period when they were recruited to the period after they graduate. The system involves many key departments including Student Recruitment Department, Student Relations Office, Department of International Collaboration and Personal Development Program, Organization and Academic Management Department, Testing Department, Curriculum Development Department, Health Division, Library, Information Technology Department.

Those departments' activities have to operate following the approved and issued ISO processes and procedures regardless of which campus those departments belong to (as Table I).

TABLE I: ISO PROCESSES FOR EDUCATIONAL SUPPORT SYSTEM

ISO process	Department in charge
Admission Process	Student Recruitment Dept.
Student Services	Student Relations Office
	Dept. of International Collaboration and Personal Development Program
	Health Division
Program Development Process	Curriculum Development Dept.
Academic Affairs Process	Organization and Academic Management Dept.
	Testing Dept.
Library Process	Library
IT process	IT Dept.

The processes which mentioned at Table I are briefly described as following:

Firstly, Student Recruitment Department follows the Admission Process which covers procedures and guidelines for admission staff as well as candidates from enquiries, application, and admission to registration. The ISO process has to provide adequate and clear pre-admission information and recruiting candidates who meet the enrollment requirements of the University in general and the program in particular. Additionally, the ISO process ensures the traceability of each admission decision through retaining admission evidence by documented information.

Secondly, Student Relations Office, Department of International Collaboration and Personal Development Program as well as Health Division follow the ISO process called Student Services. Student services mainly include administrative and academic support to students, job placement activities, mental and physical health care activities, dormitory and accommodation supports. The Student Services Process provides a series of guidelines in order to make maximum satisfaction of students' needs.

Thirdly, Organization and Academic Management Department and Testing Department follow the Academic Affairs Process. They are independent units that perform support for teaching and learning activities. The Organization and Academic Management Department monitor and measure all teaching and learning activities. It plays an important role like a mediator to comfort academic needs and handle complaints between faculty staff and students. Testing Department – an independent unit manages assessment-related activities based on guidelines of the ISO process.

Fourthly, Curriculum Development Department is a

centralized management unit which ensures to develop the comprehensive and unique programs of the University by complying with the Program Development Process. It determines the stages and controls for program design and development including evaluating stakeholders' requirements, required process stages, responsibilities and authorities involved in the curriculum development as well as continuous improvement of the programs.

Fifthly, the library also practices its functions according to the Library Process. The process guides librarians how to maintain and develop the space, books, journal, magazines, database, etc. Besides, it orientates the librarians in organizing events that encourage the use of libraries or guides to take advantage of library resources in teaching and learning.

Last but not least, the Information Technology Department complies its own process to maintain suitable and proper operation of technology infrastructure for not only teaching and learning activities but also the business operation of the University.

FPT University's business operation system: The business operation system of FPT University could be mentioned as the activities related to human resources (HR) management, facilities operation and management as well as quality assurance (as Table II).

TABLE II: ISO PROCESSES FOR BUSINESS OPERATION SYSTEM

ISO process	Department in charge
HR Management Process	HR Dept.
Admin Process	Administrative Dept.
Facilities Management Process	
Quality Assurance Process	Quality Assurance Dept.

The processes mentioned at Table II are briefly described as following:

The HR Dept. implements activities including recruiting high quality staff and faculty, human resources development, evaluating staff and faculty's performance, ensuring a healthy working environment and ensuring the legal rights and interests of employers are implemented, etc. according to its ISO process.

Additionally, Administrative Department supports other units' operation in terms of administrative procedures with state management agencies or procurement of essential items in operation according to the Admin Process. The Administrative Department also follows another ISO process called Facilities Management Process. The role of the Administrative Department mentioned in this process is to construct new facilities, operating and maintaining existing facilities at campuses.

To make sure that above-mentioned departments' activities (or in other words to ensure the University business operation) take place rightly according with the ISO processes and procedures, FPT University implements an internal auditing system by the QA department. In case non-conformities are detected, the QA department and the relevant functional departments look into the causes to find out and deal with corrective actions together.

The University has launched the KPI (Key Performance Index), BSC (Balanced ScoreCard) and OKR (Objective - Key result) tools to measure the efficiency of educational supporting activities since 2013, 2015 and 2019 respectively. Through such tools, the departments could self-evaluate their business performance according to the University targets.

In addition to internal control and management, FPT University ensures the quality of educational support system by various external audits and assessments. For example, Bureau Veritas Vietnam is the organization that has functions to audit the FPT University's operation according to ISO 9001 Standards.

Results of implementing the management system: Thanks to the effective management system, the FPT University has expanded its operation from 1 campus in Hanoi in 2007 to 4 campuses at four main cities across the nation (Hanoi, Ho Chi Minh City, Da Nang, and Can Tho) in 2020. Every single activity at new campuses could be implemented right away based on the operation model as well as the ISO processes at the University's first campus.

The effectiveness of FPT University's management system could be demonstrated through some key aspects as following:

Firstly, from 2 programs in 2007, recent academic programs of FPT University have increased to 15 undergraduate programs and 2 master degree programs in 2020 as described in Table III.

TABLE III: PROGRAMS AT FPT UNIVERSITY

Year	Name of program
2007	Software Engineering, Business Administration
2011	Computer Sciences, Information Systems, Computer Engineering, Finance and Banking
2013	Hospitality Management, Graphic Design, Information Assurance, Master degree of Software Engineering
2014	Japanese Language, English Language, Master degree of Business Administration
2016	International Business
2017	Information Technology, Multimedia Communication, Applied Mathematics
2018	Korean Language

By focusing its resources in its operations, the university has expanded its education activities to cover not only traditional programs related to IT and business but also programs in the fields of language, art and hospitality.

Besides improvement related to program expansion, since 2013 it has been recognized that the FPT University has had growth strongly in terms of new enrollment and financial growth as demonstrated in Table IV and Table V below.

TABLE IV: NEW ENROLLMENT SITUATION

		2015	2016	2017	2018	2019
Undergrad-uate programs	Number	1282	2084	3294	5221	6059
	Growth (%)	35.3	62.6	58.1	58.5	16.1
Master degree	Number	315	239	630	404	355
	Growth (%)	916	24.1	164	35.9	12.1

The new enrollment of undergraduate programs has impressive growth, especially in the period from 2016 to 2018. In the period of 2016 to 2018, each year the increase rate is 1.5 times higher than the previous year. In 2019, the growth rate did not reach the high level as the previous years,

but the statistic is still positive with the growth rate of 16%. These growths were partly due to the fact that the university's programs had increased, but most of it was due to effective management enrollment.

The new enrollment situation of master degrees may not be as good as the enrollment of undergraduate programs, but it was a couple times that the growth rate was positive.

TABLE V: FINANCIAL GROWTH OF FPT UNIVERSITY

Fiscal year	Total assets (Billion VND)
2014	651
2015	632
2016	729
2017	848
2018	1,253

Because the main revenue of a private university is largely from tuition fees, along with the growth of enrollment, the financial ratios also grew positively and witnessed outstanding increase during the period from 2016 to 2018.

FPTU is evaluated successfully in application of ISO standard system in management by ACBSP [16]. However, IOS standard system is mainly focusing for production and business companies than service companies, especially for educational service like FPTU. In fact, FPTU has made a huge effort to combine educational and management processes to the ISO system format. In order to improve educational quality and outcomes, FPT University is updating to the ISO 21001:2018 Standards. The ISO 21001:2018 Standards has been designed and published since 2019 and it fills the lack of ISO system for education organizations. Most of the processes in the ISO 21001:2018 Standards are quite similar to requirements of educational evaluation or accreditation organizations and it is easier for application.

III. CONCLUSION

In this study, authors reviewed and evaluated several educational quality assurance systems. A successful case study of applying an ISO system for educational management in FPT University is evaluated as the best practice in the view of ACBSP accreditation report 2019. The methodology of ISO standards is implemented for designing, assessing, reviewing, and updating for all activities and processes of both education and business management. The thorough application of the ISO system in management has contributed to promoting major education growth, enrollment, management of teaching and learning quality, academic development as well as mechanical facilities management in the school. ISO system optimizes the operation process as well as improves work efficiency, takes advantage of the contributions of the departments within the university as well as is applicable for multi campuses or multi-locations educational institutions.

For future work, these successes in management by applying ISO standard system for production will be compared when implementing the ISO 21001:2018 standard which focuses on education.

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