Exploring ISO Standardization as a Quality Assurance Mechanism in Sri Lankan Higher Educational Sector

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Abstract Higher education is the critical economic sector that has eventually been followed by all other major economic sectors such as financial services, healthcare, telecommunication, aviation, transportation etc. Today, higher educational institutions all over the world operate in a fast-dynamic environment with high competition for reputation, talent acquisition, and student attraction. Following the basis of that high competition is leading to a significant focus on quality. It is not easy to define the quality in terms of higher education since the complex relationships of higher education to students and the different roles of a student in the higher education process. Addressing the issue, International Organization for Standards (ISO) has recently published a new quality framework for higher educational institutions; ISO 21001:2018 EOMS and most of the institutions adopted ISO 9001 standard series until the publication of the new ISO standard for higher education. This study employs an evidence-based approach and critically evaluates the existing literature on ISO QMS implementation in higher education institutions in different countries with the intention of elaborating on the necessity of adopting it in the Sri Lankan context. Further, it attempts to summarize the key benefit, challenges, and critical success factors of ISO implementation with reference to Sri Lanka. According to the findings, the key benefits of ISO adoption to higher education institutions are cost reduction, consistent customer satisfaction, risk management, international recognition, adopting rapid changes, attracting grants/ funds, and strengthening international linkages and relationships. In addition, the challenges and critical success factors are also elaborated for easy implication.

Keywords: Quality, ISO 9001:2015, ISO 21001:2018, Higher education, Quality management systems, Sri Lanka

I. INTRODUCTION

Human resources are the prominent factor which facilitates all business entities and all industries to achieve their organizational goals and objectives operating in a fast dynamic environment and handling the pressures associated with market competition. When considering the current economic crisis in Sri Lanka, the necessity of a quality workforce well-equipped with the intended knowledge, skills and competencies is felt now more than ever to face intricated challenges for all kinds of local industries operating in Sri Lanka. One of the typical challenges most Sri Lankan entities face is investing in quality human capital due to the skill mismatches of the labour market (SMLM). This problem severely affects especially on emerging local industries. Even though the problem of SMLM was addressed in various phases over the last few decades, the country still fails to rectify the issue by enacting a standardized framework for its educational system.

Elgobbi (2014) has examined that higher educational institutes (HEIs) have the major responsibility of building quality human resources to full fill the labour requirements of all kinds of industries so that those would be able to face global competition. Therefore, It is important to assess the possibility of establishing an appropriate quality system for both public and private HEIs to overcome their inherent barriers. International Standard Organization (ISO) is one of the globally recognized institutes which provides normative models that can be adapted to any type of industry. Therefore, Adopting the HEIs in accordance with the ISO quality systems would be generated more benefits towards all of its stakeholders while satisfying and achieving their expectations streamlining with global excellence (Sfreddo, et al., 2021).

Quality has always been considered an important matter in any type of institutional involvement with different parties and groups. Over the last decades, major attention has been given to the area of quality and more literature can be found examining how businesses should set quality to ensure future growth. Several authors have defined quality in literature. Ovretveit (2000) has defined quality as "exceeding customer expectations". And also, the definition of quality given by the American Society of Quality Control is "the total features and characteristics of a product or service made or performed according to specifications to satisfy customers at the time of purchase and during use" (Talha, 2004).

Quality consists of several general principles that are being upgraded with time. The prominent quality principles at all times include customer satisfaction, continuous development, teamwork practice, decision-making based on facts and data, empowerment and problem-solving (Evans & James, 2000). In addition, the literature provides quality dimensions elaborating on the higher education sector.

The quality of major functions in a university system is depending on the quality of its administration and management. Therefore, continuous improvement of quality control management aids to develop and enhance the overall quality of higher education service in general (Lagrosen & Lagrosen, 2005). According to Chandru (1999), quality assurance is important for improving and maintaining higher education. Further, the mechanism of quality assurance in higher education must be an explicit process rather than an implicit one. Following an explicit process enables HEIs to sustain the quality of their activities in a way of fitting with their major objectives while having an independent third-party confirmation (Loder, 1991).

Developing and following a proper quality management system is one of the critical responsibilities of all HEIs (Hernandez, 2010). Even though, the HEIs are liable to maintain a proper quality assurance mechanism, typically no standard specifications for the structure and contents of such system. Therefore, HEIs have the freedom to develop their own quality assurance system and procedures to align with the institutional strategic and operational objectives. Further, that autonomy permits HEIs to obtain external support to audit the quality assurance system and to choose the internal quality assurance systems as they intend (Kettunen, 2012). Accordingly, the non-availability of a standard quality assurance mechanism that would be possible to imply generally across all HEIs, has created several issues in the field of higher education which affect worldwide. Among them, arising a huge quality gap among HEIs operating under the same conditions, unnecessary competition among the students when choosing some HEIs, not having proper recognition for some programmes offered by several HEIs and the contents of the programmes are not being updated to fit with the industrial requirements can be highlighted (Kistan, 1999).

In the way of finding solutions for the above issues and mismatches in higher education, the HEIs in many countries in the world have taken action to adopt ISO standards for all possible levels, procedures, and stages of their educational programmes (Singh & Sareen, 2009). Before 2018, ISO Standardization had not covered the educational sector establishing a separate standard for it. Therefore, educational institutions have adopted ISO 9001 since its founding version of 1987 and following the subsequent versions in 1994, 2000, 2008 & 2015. Since ISO 9001 is directly related to the manufacturing sector, it might cause some ambiguity in educational sector practices. Accordingly, ISO published a new quality standard for the education sector ISO 21001:2018 EQMS specifies requirements for a management system for educational organizations (Kovalenko, et al., 2020).

The Sri Lankan higher education system also facing the same issues mentioned above due to the non-availability of a general quality assurance mechanism which assures the overall quality of the different types of processes and services rendered by HEIs. Even though a few national and private universities follow standard quality control systems under the supervision of the university grant commission, many HEIs in Sri Lanka don't follow sophisticated quality control systems aligned with international standards. Therefore, the main goal of this literature review is to assess the suitability of implying the latest ISO educational quality standards among Sri Lankan HEIs to enhance their overall quality to align with international standards.

II. METHODOLOGY

The primary objective of this study is to investigate the suitability of adopting ISO quality standards (ISO 9001:2015 & ISO 21001:2018 EOMS) in Sri Lankan HEIs to enhance their overall quality aligned with international standards. It would be provided reasonable solutions for most of the severe issues in the Sri Lankan higher education system. The evidence-based approach was followed to analyze the existing literature. Therefore, the research approach is analytical and explanatory in nature based on the literature review. Since it was impossible to find literature which addresses the ISO quality standards implications in Sri Lanka, literature relating to the implication of ISO standards in HEIs in other countries was mainly considered.

Prominent quality-related journals and google scholar were used to recognize the relevant literature of this study. Since the study focuses on ISO quality standard implementation in Sri Lankan HEIs and the keywords used to find the pertained sources were: "ISO 9001:2015 QMS", "ISO 21001:2018 EOMS", Higher education", "Quality control", "Quality standard", "Universities", "Quality management systems" and "Sri Lanka". The Boolean operators such as AND, Or and NOT were utilized to combine the search on the above key terms. First, the duplicated studies were excluded and then go through the titles and abstracts of the articles to identify the most related articles. Then a comprehensive reading of the selected papers was done to find the expected findings.

III. RESULT & DISCUSSION

Higher Education System in Sri Lanka

The University Grants Commission of Sri Lanka (UGCSL) is the apex body of the university system in Sri Lanka which was established on 22nd December 1978 under the Universities Act No. 16 of 1978. The functions of the UGCSL are planning and coordination of university education, allocation of funds to Higher Educational Institutions (HEIs), maintenance of academic standards, regulation of the administration of HEIs and regulation of admission of students to HEIs (https://www.ugc.ac.lk/).

As per the UGCSL, the updated details regarding the composition of the Sri Lankan higher education system have been summarized in the below table.

Table 1: The composition of the Sri Lankan HEIs

Institutional Type	No of Institutions
Public Universities	17
Public Campuses	2
Public Higher Educational Institutions	19
Other Government Universities which are established by Acts of Parliament of Sri Lanka	06
Degrees of Institutes Recognized under Section 25 A of the Universities Act No. 16 of 1978	06
Degree awarding status granted by the Ministry of Education (Specified authority being the Secretary, Ministry of Education)	23
Professional Qualifications Recognized as Entry Qualifications for Postgraduate Degrees.	02
Programmes offered by universities established under Separate Parliament Acts.	01
Total	**76**

According to the above figures, nearly 76 HEIs are operating in Sri Lanka under the direct and indirect supervision of UGCSL. Therefore, it can be concluded that the Sri Lankan higher education system mainly consisted of the above institutions. Currently, many foreign universities offer degrees in Sri Lanka establishing their branches or associated with private universities. In addition, there are some major professional institutions which offer internationally accepted qualifications which have equal recognition of undergraduate and postgraduate programmes. Even though such foreign universities and professional institutions also significantly contribute to higher education in Sri Lanka, the quality management systems of those were not considered for this study since they are following separate frameworks provided by international and foreign entities.

International Organization for Standardization (ISO)

"ISO (International Organization for Standardization) is an independent, non-governmental international organization with a membership of 168 national standards bodies. Through its members, it brings together experts to share knowledge and develop voluntary, consensus-based, market-relevant International Standards that support innovation and provide solutions to global challenges. ISO has published more than 22900 International Standards and related documents covering almost every industry, from technology to food safety, to agriculture and healthcare" (www.iso.org).

ISO 9001 QMS and higher education

Among the various ISO quality standards, ISO 9001 provides a set of criteria for implementing a Quality Management System (QMS). It helps both manufacturing and service organizations to ensure consistent customer loyalty and the quality of products which brings massive business benefits (Goetsch & Davis, 2000). Therefore, many organizations in the world attempt to implement their quality management systems (QMS) under ISO 9001 in response to rising customer expectations and global competition.

Favourable and unfavourable effects of the ISO 9001 standard depend on the specific contextual factors and identifying those factors would help to improve its practical implications by enhancing organizational efficiency and mitigating the risk of misconduct (Boiral, 2011). However, ISO certification should consider as a learning process involving its own drawbacks and benefits and sometimes surprises, instead of being taken as a specific goal of just accreditation of the standard (Moturi & Mbithi, 2015). Further to achieve the best outcomes of ISO 9001 implementation, continuous evaluation of data relating to processes, system performance and feedback received from customers must be evaluated and discussed conducting regular management review meetings in order to identify the potential growth opportunities and take corrective and preventive actions (Wahid, 2012).

Even though ISO 9001 is originally focused on the industrial background, many service organizations also have adopted it. According to the ISO report (2009), 40 per cent of all ISO 9001 certificates are accounted for service organizations in the year 2008. In particular, the growing interest of higher education institutes to adopt ISO 9001 has also been observed by some authors since early 2000 (Thonhauser & Passmore, 2006). The main reasons for the adoption of ISO 9001 by many HEIs that could find from the literature are high competition among educational institutions to attract and retain more students, pressure from governing bodies requesting HEIs to implement continuous processes to promote and improve the quality of education and to make the efficient use of resources to ensure the accountability towards stakeholders and the funding bodies (Gamboa & Melao, 2012).

At the initial stage, some authors (Peters, 1999; Labaree, 2000) questioned the relevancy of ISO 9001 to higher education. Other authors (Stimson, 2003; Bae, 2007; Moreland & Clark, 1998; Sohail, et al., 2003; Costa, et al., 2009) revealed the suitability and positive impacts of implementing the early versions of ISO 9001:1994 & ISO 9001:2000 in higher education. In addition, many authors examined the outcomes of implementing the latest versions of ISO 9001:2008 and ISO 9001:2015 in higher education.

The ISO 21001:2018 EOMS and higher education

In the year 2018, ISO published ISO 21001:2018 EOMS a new standard to fulfil the requirements of a specific Quality Management System for educational system. This standard facilitates educational institutions to achieve continuous improvement by implementing a standardized management system. Although the content of the new standard ISO 21001:2018 incorporates all key concepts of ISO 9001, ISO suggests, educational institutions should permanently discontinuetinue ISO 9001 and transfer to the certification of ISO 21001:2018 EOMS to avoid the inconclusiveness of some areas in ISO 9001 (ISO, 2019).

The educational community might take a considerable period to fully acknowledge and recognize the new standard; ISO 21001:2018. One of the main goals of ISO certification is to boost the corporate profile in marketing strategies. Therefore, more success stories are required to get the attention of educational institutions to adopt ISO 21001:2018 as it is not more popular than ISO 9001 (Wibisono, 2018).

Similar to other ISO standards, ISO 21001:2018 is also based on the Plan-Do-Check-Act principle (PDCA principle). It helps organizations to evaluate all the areas of standardization including the focus on social responsibilities and other related aspects. Implenatiation of ISO 21001:2018 generate endless advantages towards the educational sector including better alignmennt of the standard requirements and tasks with the organizational internal policies (Kovalenko, et al., 2020).

Limited literature across the globe could find elaborates on the implication of the early versions of ISO 9001 such as ISO 9001:1994 and ISO 9001:2000 in HEIs. However, the literature provides sufficient evidence for many successful cases of implementing the later versions of ISO quality management system standards such as ISO 9001:2008 and ISO 9001:2015 in higher education. In addition, a few studies provide successful cases of implementing the newest version of the ISO quality standard for education; ISO 21001:2018. Accordingly, the benefits and successful cases of the three main ISO quality management systems (ISO 9001:2008, ISO 9001:2015 and ISO 21001:2018) on

higher education observed from the literature have been presented in the next two sections.

The common benefits of ISO standards; Incorporated with HEIs

The early 1990s was when many organizations started to adopt and implement ISO quality standards, spreading over both government and international organizations (Elgobbi, 2014). According to Brown (2013), many business entities have initially attempted to obtain ISO certifications to get the government's tenders and enter certain markets. Some researchers revealed that many organizations' need for ISO certification is based on combined internal and external motives (Beattie, 1999; Tsiotras & Gotzamani, 1996; Khan, 2003; Yahya & Goh, 2001; Blessner, et al., 2013). According to the studies conducted by Zaramdini (2007) & Fotopoulos & Psomas (2010), ISO 9001 certification would help business organizations to improve their internal functions and performance ensuring standardized quality systems for both manufacturing and service processes.

Another set of studies conducted by Jones & Arndt (1997), Blessner, et al., (2012) & Sampaio, et al., (2009) in different periods have revealed that the implementation and application of ISO practices adhering to its general requirements enables the business organization to supply their products and services ensuring the consistent customer satisfaction. Further, the same studies elaborated that some entities have accredited ISO 9001 certification as they strongly believe that the failure to accomplish the requirements of ISO would generate unfavourable impacts on their success and growth. In addition, ISO certification provides an internationally accepted third-party guarantee for their main business and management processes.

The effectiveness of implementing ISO 9001 can be measured by evaluating the levels that the organization has achieved the standard's objectives namely, focusing on customer satisfaction, continuous improvement, and the prevention of non-conformities. Therefore, the effectiveness of ISO 9001 has a direct and vital impact on the operational performance and product quality of the certified entities.(Psomas, et al., 2013). The implementation of ISO standards leads to creating favourable impacts on the work culture and routine task management (Muslim & Suradi, 2012).

The specified benefits of ISO standards towards HEIs

In addition to the above common benefits of ISO standards, researchers have identified some unique benefits towards HEIs resulting due to the incorporation of ISO standards for their processes and some critical benefits have been presented below.

According to several studies that have been carried out in Malaysian universities, the right implementation of ISO 9001 standards within the HEIs at the right time leads to significant favourable changes resulting due to the incorporation of well-defined management processes and proper risk management strategies in the process of standardization. Further, the incorporation of ISO 9001 enables Malaysian universities to face challenges and opportunities more confidently arising due to technological advancements. In addition, the development of quality management systems for HEIs aligns with the requirements of ISO standards, helps them to successfully survive in the competitive markets and to be updated in terms of information, creativity, innovation and quality (Othman, et al., 2017).

Andiva & Simatwa (2018) revealed that the preparation of course outlines and timetables adhering to ISO 9001:2008 quality management systems ensure good coordination and considerable cost reduction with maximum customer satisfaction. Further, their study has confirmed that 80% of outcomes with guaranteed service quality can be achieved by utilizing only 20% of resources as a result of adhering to the ISO 9001 quality management system. The findings of the same study revealed another set of massive benefits for HEIs. The accreditation of ISO 9001: 2008 quality management system in universities contributes to attracting grants and funds, esteemed internship opportunities and strengthening local and international linkages and partnerships with the professional demands. Good partnerships and linkages can be considered as the pillars of HEIs that sustain their development and vibrancy. Thus this recent study emphasizes that the ISO quality management system was a significant determinant of service quality in universities.

The findings of Moturi & Mbithi's (2015) study which was conducted regarding the implementation of ISO 9001: 2008 QMS to the University of Nairobi present that significant favourable changes have been established due to the institutionalization of ISO quality management systems into the university processes, working environment, record and documentation management, infrastructure and facilities, customer satisfaction, library system and the application of ICT for performance improvement. In addition, the same kind of benefits of implementing ISO 9001:2008 & ISO 9001:2015 QMS in HEIs mentioned above has been reported by many scholars based on their studies conducted across different regions in the world (Supradith; 2001, Sang Hoon Bae; 2007, Mediano and Diaz; 2014 & Vusa; 2016).

Even though the least literature available regarding the implementation of ISO 21001:2018 EOMS, Gilbert; (2020)

explained that the recently introduced ISO standard ISO 21001:2018 EOMS for higher educational organizations includes all requirements and guidance for use, is composed to have a vital impact on the critical elements of quality assurance in higher education. According to his study conducted based on USA HEIs, ISO 21001:2018 introduces an operating system model for educational organizations. The operating system model always clearly defines the key aspects of processes used in an organization. It's beyond the general quality practices and must adopt quality management structures continuously in their practises. The ISO 21001:2018 standard does not limit to any specific process approach, and many forms are available to choose from. Therefore the process management approach is much more practical since there is a transition in higher education from in-person classroom learning methods to technology-enabled education engaging with the array of ICT and online education modalities.

The duration of ISO certification is also important. ISO certification has a limited duration, usually three years and needs interim surveillance audits to ensure whether the processes remain in place with quality. The shorter review interim period of ISO 21001:2018 over its accreditation is a demonstrative advantage for higher education due to the rapid changes occurring in certificate-based education and technological advancement (Coletto & Monte, 2019).

For all kinds of HEIs, the recent ISO standard (ISO 21001:2018) is recognized as the beginning of a cycle of change towards highly standardized approaches to quality in higher education (Schumann, et al., 2019). According to Anttila & Jussila (2018), ISO 21001:2018 is being evolved as a potential quality tool to define the quality assurance system of the guidelines and standards for quality assurance in the European context. The application of ISO 21001:2018 has been promoted vastly among many countries although the adoption of the new standard by HEIs does not appear to be widespread.

Challenges of adopting ISO in HEIs

According to the literature, the challenges of adopting ISO quality management systems in HEIs are mostly associated with internal institutional problems. It is worth to identify the major challenges in advance to mitigate the risk of being unsuccessful in ISO implications. The main challenge is the inadequate commitment from faculties and staff members as the majority consider ISO QMS as an additional workload rather than an improvement process. The lack of resources, physical infrastructure, and other facilities available for the complete implication of QMS is another challenge. The requirements of proper documentation control mechanism including easy access to all reference documents and maintaining a complete set of

records is also a big challenge. The collaboration with external parties some of which are not certified becomes a barrier to establishing a standardized QMS. Inadequate communication among both internal and external stakeholders lowers the effectiveness of QMSs (Kasperavičiūtė, 2013; Moturi & Mbithi, 2015)

Critical Success Factors (CSFs)

The identification of CSFs is essential for the sustainable implementation and maintenance of standardized QMS within HEIs. The management of the organization is responsible to identify the CSFs in maintaining ISO-based QMS, especially during the post-certification period as it is more significant than during the certification period. Wahid & Corner (2009) have reported that human factors (including both management and employees), team collaboration, reward mechanism, continuous improvement, understanding of standards, performance evaluation and communication as the CSFs for ISO QMS maintenance. Ismyrlis, et al., (2015) state the most critical CSFs as being human commitment, education and communication. In addition to the above CSFs, Moturi & Mbithi, (2015) have identified shared trust, responsiveness to staff and student necessities, regular review of QMS, training and sensitization for all kinds of employees, fair resolution of students' complaints and regular QMS meetings as the CSFs for better implementation and maintenance of QMS in HEIs.

ISO standards & Sri Lanka HEIs

Considering all 19 public universities operating in Sri Lanka, no university has obtained ISO certification for their overall QMSs. Instead, only a few departments and public institutions have certified their QMS under ISO 9001:2008 & ISO 9001:2015. On the other hand, among the 23 private sector HEIs for which the degree awarding status is granted by the Ministry of Education, only less than five institutions have obtained ISO 9001:2008 and ISO 9001:2015 certification for overall university QMS. Therefore, altogether only less than 10 HEIs nearly out of 76 public and private higher educational institutions operating in Sri Lanka have certified their QMS under ISO 9001 standard and still no institutions have certified their QMS following the recently published ISO 21001:2018 EOMS. The above approximate statistics were finalized by doing a web analysis since the non-availability of an accepted data source to identify the ISO-certified institutions. In addition to the Sri Lanka Standard Institute (SLS), a few other international ISO certifying institutions also grant ISO certifications to Sri Lankan organizations.

IV. CONCLUSION

The main goal of this study was to investigate the effects of adopting an ISO quality management system on Sri Lankan HEIs. The analytical review of existing literature confirms that adopting ISO 9001 QMS and ISO 21001:2018 EOMS in HEIs has proved a noteworthy growth with a potentially significant influence on quality accreditation processes.

Generally, HEIs can enjoy the common benefits of adopting ISO quality standards such as achieving consistent customer loyalty, continuous improvement of internal functions and enhanced quality of overall organizational performance. In the view of the higher education sector, it has been notable that adopting ISO-based QMS would enable HEIs to the acquisition of competence through their main function of teaching, learning and research. Further, Standardized QMS facilitate effective risk management and significant cost reduction by ensuring good coordination among all academic and administrative functions. The international recognition received from the ISO accreditation will help to build strong partnerships and linkages with different stakeholders and it would significantly contribute to attracting grants and funds, esteemed internship opportunities and strengthening local and international linkages and partnerships with the professional demands.

The process management approach provided by the recently published ISO EOMS is more suitable to face the transition in higher education from in-person classroom learning methods to technology-enabled education engaging with the array of ICT and online education modalities. In addition, the shorter review interim period of ISO 21001:2018 over its accreditation is a demonstrative advantage for higher education due to the rapid changes occurring in certificate-based education and technological advancement.

Accordingly, the literature confirmed that the ISO-standardized QMS for educational organizations is established a significant favourable impact on the critical elements of quality management processes in higher education. However, the institutions have to face the challenges associated with human factors, resources and physical infrastructure, documentation, management structures and communication in their journey of implementation and maintaining ISO standards. Therefore, the identification and consideration of CSFs are also essential for the successful implementation and maintenance of standardized QMS within HEIs.

V. RECOMMENDATIONS

In Sri Lankan context, the implication of ISO quality management systems in HEIs is at a very lower level. Still, at least one Sri Lankan university fails to sustain itself within the top 1000 universities in the world in terms of the globally accepted university rankings. Accordingly, adopting ISO QMS for Sri Lankan HEIs is much essential

to go forward with the other international HEIs. This single study just provides an energetic basis for further discussions. More opportunities, therefore, exist for further studies to contribute to satisfactory ISO adoption towards Sri Lankan HEIs.

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