Review

Issues and Challenges of Quality Assurance in Higher Education Institutes: A Systematic Literature Review

HMC Pushpakumara[1*], Prasad M Jayaweera[2], and MK Wanniarachchige[3]

1. Faculty of Management and Finance, University of Ruhuna, Matara, Sri Lanka; chandanap@badm.ruh.ac.lk,

2. Faculty of Applied Sciences, University of Sri Jayewardenepura, Nugegoda, Sri Lanka; pja@sjp.ac.lk,

3. Faculty of Management and Finance, University of Ruhuna, Matara, Sri Lanka; manjula@mgt.ruh.ac.lk

* Correspondence: chandanap@badm.ruh.ac.lk ; 0718374916

Abstract

Quality Assurance is a timely topic in higher education that ensures the quality has been fulfilled in order to achieve the expected objectives. While many success stories and improvements have been reported, implementation issues and challenges have been highlighted in quality assurance systems. Therefore, a systematic literature review can be used to be aware of recent advancements and unsolved problems of the scenario. To this end, this study reviews the related research studies highlighting the issues, challenges, and proposed solution approaches. Accordingly, this study identified issues of quality assurance under three main categories: 1. institute-related issues, 2. quality assurance process related issues, and 3. quality assurance stakeholder related issues. Further, three main solution approaches were identified: 1. attitude changes and increasing the awareness of stakeholders, 2. policy-level changes of the system, and 3. quality assurance process improvements and facilitating information system solutions to address these issues. Among these solutions, process improvements and information system solutions can be identified as a substantial solution to address these issues. However, to create an effective information system solution to facilitate higher education quality assurance, a reliable model is necessary. This literature review highlights the lack of such a reliable model for developing an information system that aims to facilitate higher education quality assurance.

Keywords: Higher Education; Quality Assurance; Systematic Literature Review

1. Introduction

Quality Assurance (QA) of higher education[1] mainly focuses on improving the quality of education provision and standards of awards (UGC, 2015). Internal QA and external QA are the two main components of a QA system. Here, internal QA monitors the quality aspects of

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[1] Education at university, especially to degree level

internal processes and inculcates quality culture at the institutional level. The external QA focuses on compliance and accountability of the respective QA system (Paintsil, 2016). QA employs periodic QA reviews to assess the higher education entities against pre-determined standards. This assessment process heavily relies on assessing past documentary evidence in addition to the site visit, examining online sources, and stakeholder interviews (Hamdi-Cherif, 2011).

Although QA encompasses daily activities that have to be performed as regular work, scholars have observed that QA has detached from everyday activities (Pornphol & Tongkeo, 2019). Most often, QA activities are focused on QA reviews. Review-oriented document preparation and maintenance are complex, time-consuming, and non-value-adding tasks (Brečić, 2020; Imbulgoda, 2019; Yakubu et al., 2019). Further, these review-oriented QA activities have become an additional burden for the academic and non-academic staff and an additional cost to the higher education institute (Anderson, 2006; Imbulgoda, 2019). Moreover, fabricated information can be provided for the QA reviews that do not reflect the actual situation. In this context, higher education needs dynamic systems and mechanisms to perform the QA process efficiently and consistently (Pornphol & Tongkeo, 2019).

Higher education institutes employ a variety of computerized information systems, such as the Learning Management System (LMS), Student Information System (SIS), Academic Accountability and Workload System (AAWS), and Examination Management System (EMS), to facilitate academic and administrative activities (Chaushi, 2013; Prakash & Selvakumari, 2021). Further, higher education institutes have acquired many advantages by employing such information system modules. For example, improved operational efficiency, efficient record-keeping, delivery of technologically improved smart services, and information provision for decision-making (Chaushi, 2013). Although these information systems significantly enhance the efficiency of services, they focus on something other than expected quality assurance and improvements in the higher education domain (Welsh & Dey, 2002). Therefore, these systems poorly support typical QA-specific activities, such as monitoring and evaluating quality aspects, maintaining QA evidence, and facilitating QA reviews (Jama & Ikhsan, 2018).

Although there have been improvements in the QA process, higher education institutions still encounter practical challenges in implementing internal and external quality assurance systems (Brečić, 2020). Therefore, this systematic literature review aims to investigate related research findings concerning the implementation issues and challenges of higher education QA procedures and respective solution approaches. As revealed, to address these issues, it would be advantageous to introduce information system solution to facilitate the QA process through related process improvements. Accordingly, this study further explores the information system solution development scenario in order to identify the necessary improvements. The results of this comprehensive analysis of published works can provide useful knowledge for future research on improving the quality assurance process in higher education through the integration of helpful information system solutions.

2. Methodology

This study followed the systematic literature review process described by Kitchenham (2004). This systematic literature review consists of three main stages planning, conducting, and reporting. The planning stage identifies the need for a systematic literature review and develops a respective review protocol. Identification of research, selection of study, study quality assessment, data extraction, and data synthesis are the main components of the conducting

stage. Finally, reporting of the findings is performed in the reporting stage. Following, two subsections describe the planning and conducting stages of this study.

2.1 Planning the Review

Although higher education institutes have paid greater attention to implementing the QA system, its implementation issues have been reported often (Brečić, 2020; Imbulgoda, 2019; Sari et al., 2016). Therefore, awareness of the existing issues and proposed solutions is important to implement the QA process successfully. This study investigates the following research questions to determine existing issues, challenges, and solutions for implementing the higher education QA process.

1. What are the identified implementation issues and challenges of the higher education QA process?

2. What are the proposed solutions to address the issues and challenges, and how effectively have they been implemented?

2.2 Conducting the Review

This study primarily utilized five online databases to examine research articles: ScienceDirect, IEEE Xplore, Taylor & Francis, ACM Digital Library and Springer. In addition, Google Scholar search engine and printed materials were also referred to.   In this context, this literature review was only included published journal articles, conference proceedings, books, book chapters, thesis, and dissertations from year 2000 to 2022.

The keywords used in the search are "higher education", "quality assurance", "issues, challenges and solutions", "quality assurance information system". Although these database searches yielded a large volume of publications, the most appropriate publications were selected according to the objectives of the study. In this context, repeated publications were deleted, and the remaining articles were narrowed down via reading of the title and abstract.

Next, inclusion and exclusion criteria were applied to narrow down the yielded articles further. The inclusion criteria involved articles published year from 2000 to 2022, published in the English language, QA in the context of higher education and any of the geographical location. The exclusion criteria were, articles published in non-English and out of the considered range of years, studies not relevant to the higher education QA, and articles lack of research component. After applying the inclusion and exclusion criteria, a total of 72 articles were obtained. Table.1 presents the breakdown of the number of abstracts and full papers referenced in each database. EndNote X7 software was used as the reference manager.

Table.1 Distribution of number of abstracts, and full papers referred in this study in each database

Database	Abstracts	Full Papers
ScienceDirect	2	6
IEEE Xplore	3	8
Taylor & Francis	0	10
ACM Digital Library	0	8
Springer	3	6
Other Sources	6	20

Selected research articles were individually analyzed, and reported issues and challenges were examined. Further examination revealed that identified issues and challenges could be categorized into main categories. In addition, suggested solutions were also examined, and key

solution approaches were further explored. After a thorough analysis, the identified issues, challenges, and corresponding solution approaches were carefully examined, and the results were reported.

3. Results

The investigation results observed that three main categories of issues had been researched, 1. institute-related QA issues, 2. QA process related issues, and 3. QA stakeholder related issues. Accordingly, four institute related issues, three QA process related issues, and four stakeholder related issues were identified as the most highlighted issues. Table.2 lists three main categories and identified issues for each category. The next three sub-sections explore each category of issues.

Table.2 Three main categories of QA issues

Institute Related QA Issues	QA Process Related Issues	Stakeholder Related QA Issues
1. Lack of management involvement for QA	1. Difficulties in QA perspective monitoring the process	1. Reluctance from academic staff for active contribution to the QA process
2. Inefficient governance and management	2. Difficulties in maintaining documents and inaccessibility of required data	2. QA has become an additional work within the context
3. Unsupported organizational structure	3. Transparency issues of the QA procedure and subjective evaluations	3. Issues in stakeholder participation in critical activities
4. Lack of dedicated workforce		4. Poor linkage with external stakeholders

3.1. Institute-Related Quality Assurance Issues

Various institutional arrangements and commitments are necessary to successfully implement the QA system (Harvey, 1995; Mahbub, 2017; Wickramasinghe, 2013). However, scholars have highlighted that several institute-related issues can be identified as challenges in implementing a QA system (Mahbub, 2017; Mursidi, Murdani, et al., 2019; Wickramasinghe, 2013). Such issues are lack of management involvement, inefficient governance and management, unsupportive organizational structure, and lack of a dedicated workforce for the QA process. This sub-section further explores these institute-related issues.

Although the quality assurance and improvement activities are more visible in operational level activities, quality concepts need to be implanted from the top level of the institute. For instance, quality aspects need to be initiated at the strategic level of the institute, i.e., institutional vision, mission, goals, and objectives (Mokhtar et al., 2013). Here, operational-level activities need to be streamlined to achieve the expected strategic-level quality aspects. Therefore, the commitment of the top management is vital to implement the QA system across the institute (Cardoso et al., 2016; Do et al., 2017; Mahbub, 2017; O'Mahony & Garavan, 2012). In addition, several scholars have highlighted the commitment of top management to implement the QA process successfully in different aspects, such as providing motivation through leadership, setting and resourcing quality policy, and facilitating people to achieve quality

(Groen, 2017; Wickramasinghe, 2013). Hence, management involvement is critical in implementing the QA process successfully.

Generally, the central authorities (i.e., the Ministry of Education/Higher Education, University Grants Commission/Higher Education Council) govern higher education institutes, and each higher education institute can manage the internal procedures individually (Aburizaizah, 2022; Mahbub, 2017; Wickramasinghe et al., 2014). Therefore, central authorities and institutional governing bodies formulate and implement the appropriate governance and management mechanisms to achieve expected national and institutional objectives (Aburizaizah, 2022). The quality of a higher education institute is closely related to its quality of governance and management (Nabaho et al., 2020). Further, the support of the management of the respective higher education institute is critical for the success of the QA system (Kahveci et al., 2012). In addition, Islam (2014) has statistically proved that leadership and governance are more challenging factors in the formal QA and accreditation mechanisms in the higher education context of Bangladesh. Scholars have observed several governance and management issues that influence the quality of higher education, such as failures to provide satisfactory service, uneconomical functions, underutilization of funds for development, and agitations among students and staff (Imbulgoda, 2019; Ko, 2017).   Therefore, efficient governance and management are necessary to implement the QA process successfully.

The next identified issue is the unsupportive organizational structure. A well-planned organizational structure supports implementing QA and enhancement rather than a traditional system (Haapakorpi, 2011; Lomas, 2004; Paintsil, 2016). Higher education institutes have focused on improving the organizational structure to be accountable for quality (Do et al., 2017; Gulden et al., 2020). Scholars have highlighted such improvements of the organizational structures in QA and accreditation schemes (Chalaris et al., 2017; Hiệp, 2020; Ko, 2017; Paintsil, 2016).

The lack of sufficient workforce to enable the QA process is also one of the challenges in performing and improving the higher education QA process successfully (Darojat, 2018; Mahbub, 2017; Materu, 2007; Seniwoliba & Yakubu, 2015). Mainly, academics in higher education institutes serve as QA administrators in addition to their central role in teaching and research (Mahbub, 2017; Wickramasinghe et al., 2014). As a result, the duties of these academics have become overlapped, making it challenging to provide dedicated service to the QA organization they represent. Therefore, in order to improve the efficiency of QA administrative roles, it is recommended that employees serving in such positions are relieved from other responsibilities (Seniwoliba & Yakubu, 2015). In addition, Mahbub (2017) has highlighted that higher education institutes face difficulties in implementing the PDCA cycle due to the lack of workforce for analysis and documentation tasks in the QA process. Therefore, a dedicated workforce is required to implement the QA activities efficiently.

3.2 Quality Assurance Process Related Issues
As listed in the table.2, three main issues were identified under the QA process related issues, i.e., 1. Difficulties of activity monitoring, 2. Issues in maintaining documents and inaccessibility of required data, and 3. Transparency issues of the QA process and subjective evaluations. This sub-section further explores each issue in the following paragraphs.

Monitoring is one of the tools used to assess the quality of education (Bazhenov et al., 2015; Lomas, 2004). This monitoring determines the adherence to respective QA standards,

policies or procedures in performing the task (Sugiarti, 2022). This monitoring process typically involves observing, assessing, and predicting process changes via prompt actions and subsequent process improvements. Bazhenov et al. (2015) have explored the monitoring process of the QA and observed several issues, such as inefficiencies in using and adopting new information technologies by the older generation of the system, lack of proper monitoring functionalities of the existing information system solutions, interoperability issues of the system components, lack of coverage of standards and performance indicators, and deficiencies of monitoring unpredictable human behaviors. Further, scholars have provided evidence for poor monitoring of core activities such as teaching and learning in universities (Do et al., 2017; Li et al., 2017). Therefore, the QA monitoring process needs to be improved by eliminating identified issues.

According to the table.2, next issue is documentation and data accessibility related issues, such as difficulties in recording, maintaining, and delivering the QA evidence and inaccessibility of required data from data sources. A typical QA process requires recording the necessary evidence of the performed activities and submitting them for QA reviews (Nyenya & Bukaliya, 2014; Seniwoliba & Yakubu, 2015). In QA reviews, printed documents and electronic versions of documents are used as proofs. This documentation is a simple but time-consuming and more human-involvement activity (Darojat, 2018; Muchira-Gatei & Sevilla, 2015). In addition, required documents need to be maintained at different levels of the institution (i.e., department, faculty, and university) to provide the necessary evidence for monitoring and reviewing purposes. Muchira-Gatei and Sevilla (2015) have further discussed the difficulties of frequently updating such documents due to dynamic processes and procedures. Therefore, the necessary documentation of the QA process is a time-consuming and more human-oriented task with frequent updates. Further, paper-based documentation adds additional costs to the higher education institute. According to the literature QA information systems maintain and manage the QA related documents in electronic form. Despite their usefulness, QA information systems require further enhancements to manage documents more efficiently (Chalaris et al., 2018).

Having difficulties accessing required data is one of the reported issues of the QA process. QA evaluations heavily rely on exploring the different forms of evidence, such as documentary evidence, evidence in electronic sources, stakeholder interviews, and process observations (Jensen et al., 2010; Mazurkiewicz et al., 2017). Therefore, generating, storing, capturing, and representing data and information are required in QA (Vorobyova et al., 2022). These data and information are in different forms, such as paper-based documents, electronic documents, online resources, workflows, etc. However, several issues have been raised in generating, storing, capturing, and representing data and information in daily QA activities and external reviews (Becket & Brookes, 2006; Darojat, 2018; Mahbub, 2017; Tahvildarzadeh et al., 2017). These data accessibility issues have been reported due to using non-electronic data sources or poor automated systems for QA activities (Pornphol & Tongkeo, 2019). In addition, using isolated information system modules and interoperability issues among different information systems have caused data accessibility issues in computerized platforms.

The next issue is transparency issues of the QA process and subjective evaluations. The credibility of a QA system depends on its transparency (International Institute for Educational Planning (UNESCO), 2014; Thune, 2005). Furthermore, transparency is one of the basic principles guiding internal QA strategies (Gvaramadze, 2008).   Stakeholders also desire the transparency of higher education and the QA processes (Costes et al., 2010; Gvaramadze, 2008). Accordingly, the QA system needs to take necessary actions to reflect the transparency of the QA process. For instance, the QA evaluation process ensures transparency at several

phases, i.e., internal review (self-evaluation), external review, and making the final decision. Generally, the QA agency makes the final decision based on recommendations of the external review team, self-evaluation, and other relevant information gathered by the QA agency to acquire the highest transparency (Martin, 2016). Making public the results and outcomes of the QA process to the stakeholders, including the general public, and especially making it accessible to the students, also maximized the transparency of the process.

Furthermore, Becket and Brookes (2006) have highlighted that the review process depends on the relationship between the institute/department and the reviewer.   Although QA prevents corruption and malfunctions, the QA system has a risk of corruption itself to acquire the economic benefits that arise from QA decisions (Martin, 2016).   Further, some international-level private accreditation institutes deliver fraudulent decisions on the accreditation of higher education institutes and study programmes (Martin, 2016). More human involvement activities in the QA process have caused transparency issues and subjective decision-making.

Accordingly, subjective evaluations of the review team have been identified as an issue in implementing QA procedures. The external QA review is performed by a review team appointed by the external QA agency with the institute's or its entity's consent. The main task of the external review team is to evaluate the internal quality assurance system following the external QA procedure. Several scholars have discussed the matters related to the review team, their review process, and the lack of transparency of judgments (Aburizaizah, 2022; Bandara, 2018; Harvey & Williams, 2010; Martin, 2016).   Identifying the personnel for the review team is the first challenge in a review process because selected persons should possess the necessary knowledge, skills, and attitudes   (Bandara, 2018).   Therefore, a transparent and more systematic method should be applied in selecting the personnel for the review teams to be an effective and efficient review process.

A QA system consists of QA standards and guidelines that need to be followed in performing activities by the respective entity (Chen & Hou, 2016; Mursidi, Udiansyah, et al., 2019). Incomplete or vague QA standards and criteria cause assessment and implementation issues in the QA system. These complexities and redundancies can be observed in the documentation process of the QA system, such as Self-Evaluation Report (SER) writing and preparation of the evidence in the external review process. Further, review teams have made subjective decisions because the standards have not covered some areas in review manuals (Bandara, 2018). The descriptive nature of these standards and guidelines is one of the reasons for their ambiguity, and they have to be assessed qualitatively (Kwandayi, 2021). Therefore, such descriptive QA standards and guidelines can be evaluated by allocating quantitative weightage for each criterion in the assessment process. It will increase the transparency of the QA evaluation process regarding the assessment of descriptive standards and guidelines.

3.3 Stakeholder-Related Issues
Collaboration between stakeholders is necessary for effective QA (Tsoodol et al., 2021). In QA, stakeholders' commitment to perform the respective activities and implement the QA regularly is more critical (Mokhtar et al., 2013). However, as listed in the table.2, several stakeholder-related issues can be observed in the higher education QA process. The following paragraphs of this subsection provide supportive literature to explore the listed stakeholder-related issues.

The identified first issue is the limited contribution of academic staff to the QA process. Previous research studies have shown that implementing QA procedures has become an additional burden, and some academic members are reluctant to adapt to the QA procedures (Aburizaizah, 2022; Anderson, 2006; Peiris et al., 2014; Pornphol & Tongkeo, 2019). For instance, since manual methods are applied, QA activities have become additional and more time-consuming tasks, such as evidence preparation and documentation for cyclic reviews. Further, academics assume that clerical types of these QA-related activities consume their valuable time committed to teaching and research. Therefore, academics' resistance, ignorance, and lack of interest and cooperation in implementing quality assurance activities have become common obstacles in the QA process (Anderson, 2006; Imbulgoda, 2019; Lucas, 2014). In addition, most academics are not ready to accept quality audit-type evaluations in the international context, which affects their autonomy, freedom, and professional status (Cheng, 2010; Mustaffa et al., 2007).

However, implementing the QA system has become mandatory across the university system (Ulewicz, 2013). Many academics have been assigned different QA tasks, even bearing additional responsibilities of the QA process of the university, faculty, or department. These responsibilities and tasks are assigned in addition to their primary duties and responsibilities, such as teaching and research (Cheng, 2010). Therefore, most of these academics and other staff members involved with QA-related activities interpreting those tasks are additional work within the system (Imbulgoda, 2019; Mahbub, 2017; Peiris et al., 2014).

Poor stakeholder participation in critical activities is another identified stakeholder-related issue. QA systems strongly encourage effective stakeholder engagement in different phases of the QA process (Beerkens & Udam, 2017; Gvaramadze, 2008). This participatory approach has been highlighted in QA frameworks that make the system more comprehensive, transparent, and responsive to the expected needs(Nguyen & McDonald, 2019). The participatory approach provides an extensive contribution of different stakeholders in broader aspects of a particular task. Nevertheless, a lack of stakeholder participation has been identified as one of the issues in many QA systems (Beerkens & Udam, 2017; Brookes & Becket, 2007; Groen, 2017). In this context, external stakeholder participation in the QA process is less when compared to internal stakeholders. However, external stakeholders' contribution is more critical in assuring and improving the quality of the activities, such as curriculum development, experience-sharing workshops, and internship programmes. Further, solid and long-lasting external links benefit both parties, such as knowledge sharing, experience sharing, acquiring industry exposure, internship opportunities, a more comprehensive range of job opportunities, sponsorships, research and development opportunities. Therefore, stakeholders' active participation in QA activities has been emphasized.

Poor linkage with external stakeholders is another issue raised in QA systems. Scholars have explored the weaknesses of university-industry partnerships and highlighted the necessity of aligning theoretical knowledge with industrial needs (Liyanage, 2013; Randil et al., 2018). One of the causes of this mismatch of university outputs with industry needs is the poor university-industry links (Jayawardena, 2012; Liyanage, 2013). In addition, poor external stakeholder involvement in the QA process, such as curriculum reviews, carrier guidance, and outreach activities, has also been observed (Imbulgoda, 2019). Not only the industry partners, dedicated and committed alumni are also valuable assets for any university to improve quality (Paul et al., 2014). Universities greatly benefit from alumni who are dedicated and committed. Establishing viable engagement with alumni opens many opportunities to improve the quality

and standards of the institute and study programmes (Peiris et al., 2014). Establishing a convenient and robust communication mechanism can achieve this intense engagement. However, as observed, higher education institutes need better relationships with alumni and other external stakeholders.

3.4 Proposed Solution Approaches for the Implementation Issues of QA Systems

The literature suggests three main approaches to address the QA process implementation. These three solution approaches are attitude changes and increasing the awareness of stakeholders (Netshifhefhe et al., 2016; Nyenya & Bukaliya, 2014), policy-level changes of the system (El-Khawas, 2007; Seniwoliba & Yakubu, 2015; Stamelos & Kavasakalis, 2011; UGC, 2019), and QA process improvements and applying information system solutions (Akpan, 2011; Elhoseny et al., 2017; Netshifhefhe et al., 2016). Figure 1 illustrates this problem domain of implementation issues of the QA system and proposed solution approaches. Given these facts, the following three subsections describe the QA policy implementation, attitude changes and increase awareness, and scholarly works relating to the QA process improvements and information system solutions as the solution approaches.
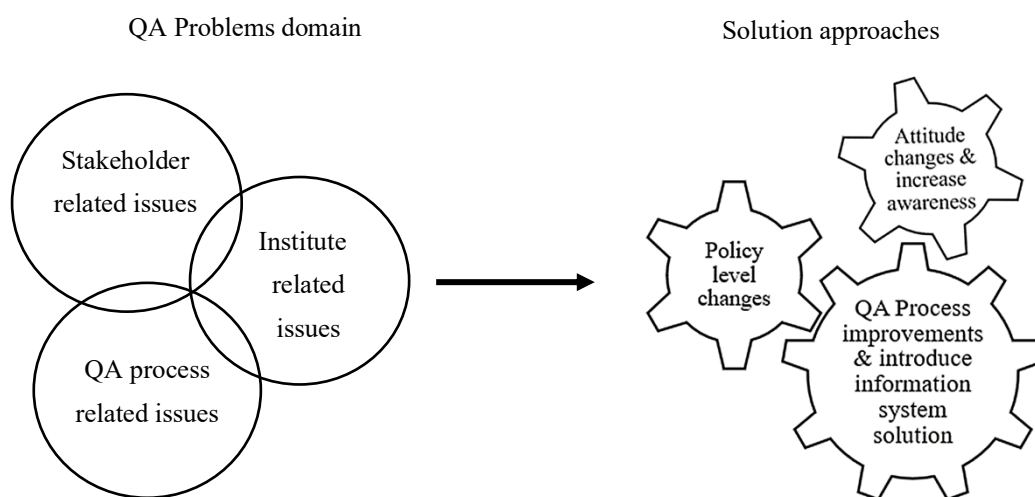

Figure 1. QA Problem Domain and Solution Approaches

3.4.1 Policy Improvements and Attitude Changes on Quality Assurance

As revealed in the literature review, necessary policy-level changes can be made to overcome institute-related issues (Hiệp, 2020). For instance, inefficient governance and management, unsupportive organizational structure, and issues in stakeholder participation can be overcome via policy-level changes in the system   (Hou et al., 2022).

As highlighted by literature an improved QA policy and a supportive organizational structure are essential for successfully implementing a QA system (Oakland, 2011; Todorescu et al., 2014). Further, it is important for the QA policy to be published and comprehended by all levels of the organization. Several countries such as Europe, New Zealand, Hong Kong, and the USA have taken the lead in implementing quality assurance policies (Shah et al., 2011).

For instance, Bologna Process is a higher education policy reforms formulated in Europe countries (Pornphol & Tongkeo, 2019). These QA policies are subject to frequent revisions to ensure they align with the current operational environment.

As revealed in this literature analysis, internal and external stakeholders' attitudes and awareness of the QA concepts and process are also critical to implementing the QA system as expected. Positive attitudes toward QA can be built up by increasing the awareness of QA among the higher education community. However, academics should view QA as a professional exercise, not a separate management task (Netshifhefhe et al., 2016). QA awareness workshops can impart the required knowledge to develop skills, attitudes, confidence, and competence in implementing the QA system (Aburizaizah, 2022; Nyenya & Bukaliya, 2014).

3.4.2 Process Improvement and Information System Solutions

In addition to the stakeholders' attitudes improvements and organizational policy changes, process improvements have been used to overcome QA-related issues. To this end, related higher education process improvements are carried out to implement the QA system efficiently (Oyo, 2010). Mainly, this can be realized through process streamlining and automating routine-type QA-related tasks (Jama & Ikhsan, 2018). Furthermore, using information systems can ensure higher effectiveness of internal processes, assuring the expected quality (Pornphol & Tongkeo, 2019). Therefore, setting up a supportive information system to facilitate the QA process is an ideal solution for successfully implementing the QA system (Hašková, 2016).

According to the literature, limited information system solutions have been proposed to facilitate the QA systems. Such solution approaches include data mining and business process modelling techniques (Tsolakidis et al., 2015), strategic management (Kahveci et al., 2012), balanced scorecard (Chalaris et al., 2014; Chalaris et al., 2011), and business intelligence (Brečić, 2020; Sorour et al., 2020). Among these solutions, many focus on developing supportive information systems for QA, such as Quality Assurance Management Systems. Meanwhile process improvements and utilizing information system can be identified as a substantial solution to overcome many issues in QA. For instance, information system solutions can cater to QA process related issues while motivating stakeholders for QA procedures and efficient QA policy implementation (Yulherniwati et al., 2020).

However, scholars have highlighted the lack of proper information systems to cater to the QA systems of higher education institutes (Jayanti & Sarja, 2019; Yulherniwati et al., 2020). One reason for the limited use of information systems is an absence of a reliable model to implement the information systems (Jayanti & Sarja, 2019). Dynamic policies, regulations and organizational structures, and complicated QA implementation tasks have been identified as challenges in implementing supportive information system model for QA (Hašková, 2016; Jama & Ikhsan, 2018). Accordingly, to facilitate the QA process, it is crucial to implement a well-designed information system that is based on thorough context analysis.

4. Conclusion

The primary objective of conducting this systematic literature review was to uncover the challenges, issues, and solution approaches pertaining to quality assurance in higher education institutes. After reviewing the situation, it is clear that despite the efforts of higher education institutions to enhance their quality assurance systems, there have been ongoing concerns regarding the implementation process. As QA is constantly evolving and requires ongoing enhancements, it's common for issues to arise and require timely solutions. Accordingly, main

three categories of issues were identified such as institute-related QA issues, QA process related issues, and stakeholder related issues.

Furthermore, higher education institutes and QA authorities have implemented various solution approaches to tackle these issues. Among these solutions, stakeholders' attitude changes, policy-level improvements of the QA system, process improvements and facilitating information system solutions are significant. Among these solutions, success stories have been reported in policy improvements, and building positive attitudes toward QA. In addition, limited information system solutions have been proposed to facilitate the QA process. In this context, process improvements and facilitating information systems can be considered as a substantial solution to overcome many issues in the context. A well-designed information system can help to address QA process related issues and ensure stakeholder engagement in the QA process. Accordingly, it is essential to have a dependable model for creating an efficient information system solution. This literature review highlights the lack of such a reliable model for developing an information system that aims to facilitate higher education QA.

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