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The possibility of applying the requirements of the educational institutions management system according to the ISO 21001:2018specification using the 8d methodology: A case study in the college of economics and business

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Abstract
This research aims to determine the extent to which the institution meets the requirements of ISO 21001:2018 standard for educational organizations, as well as using the 8D methodology as a tool for gap reduction. The study was conducted at the College of Economics and Business, Al-Nahrain University in Iraq, concerning the seven main clauses of the standard: organizational context, leadership, planning, support, operation, performance evaluation, and continuous improvement. The study employed a case study methodology through the use of checklists, personal interviews with management and faculty members, and thorough examination of institutional documents and records. The degree of implementation and documentation was measured using a seven-point Likert scale (0-6). Data analysis was conducted using descriptive statistical methods, which included calculating means, compliance rates, and gaps. The results showed an overall implementation rate of 70% across all standard components with a total gap of 30%. The highest strengths in the study were planning (81%), performance evaluation (81%), continuous improvement (80%), and operations management (72%). In turn, the study identified major weaknesses in the support component (44%), specifically the absence of organizational awareness (63%) and internal communication (50%), the leadership component (42%) and distribution of roles and responsibilities (64%), and in organizational context (32%). The study concluded that the 8D methodology is an effective research tool for identifying the root causes of these gaps and finding effective and practical solutions. In this regard, it is proposed to implement the 8D methodology as a means to reduce the number of gaps mentioned above and develop and implement sustainable improvement plans, which would cover establishing awareness and training programs, creating alternative mechanisms for distributing roles and responsibilities, enhancing internal communication channels, and introducing periodic process reviews to maintain continuous improvement and compliance with international standards.

Keywords: ISO 21001:201**8**, 8D methodology, education, performance improvement

Introduction
The educational sector has been one of the sectors where educational institutions in the world have come to recognize the importance of the ISO 21001:2018 standard in the educational sector, given that it presents extensive requirements that are meant to enhance the quality and effectiveness of the educational services. Among the key features of accreditation, the standards must be based on the recent research results and educational practices [1]. It is thus urgent to carry out empirical research on the level of compliance of such standards with the current practices in the educational institutions. Despite the various initiatives that have been made to enhance the educational support and management via quality standard, a significant lack of a single standard of management, that is specifically aimed at enhancing educational excellence and institutional competitiveness, still exists [2]. The most prominent characteristics that make organizations unique in the 21 st century are culture and knowledge. As a result, the focus on educational management has increased, and multiple management system standards have been introduced, such as the recently introduced ISO 21001:2018. This standard was introduced in 2018 to help educational institutions to manage the quality of their educational services, their consistency, and their constant improvement

efficiently [3]. The introduction of this standard has triggered a lot of debates regarding its relevance and its possible international use. Its expected contribution is that it will serve as a quality assurance measure as well as a marketing tool, which can help improve the reputation of the institutions and draw students across the world [4]. This paper will attempt to examine the feasibility of the ISO 21001:2018 requirements in the context of educational institutions, particularly in the College of Economics and Business. To this end, the study will take the 8D Methodology (Eight Disciplines of Problem Solving), which is a systematic method that was initially formulated by Ford Motor Company to detect, analyze, and eradicate root causes of nonconformities. The 8D process involves eight phases that are organized and include defining the issue, the multidisciplinary team formation, interim containment action, root causes identification, corrective action development, solution validation, prevention, and team recognition. Using this systematic method in a learning setting can allow the study to determine the performance discrepancies between the ISO 21001:2018 standards and the real practice of the institution, and thus come up with evidence-based suggestions to improve compliance and institutional performance [5] [6]. The purpose of the research is based on the growing interest in educational quality management in the world and the scarcity of empirical studies on the application of ISO 21001:2018 in practice in higher education institutions. Although the standard is theoretically relevant, there is still a lack of knowledge regarding the interpretation, operationalization, and maintenance of its requirements in actual institutional settings. Specifically, most learning institutions, particularly in developing countries, have issues regarding governance, resource distribution, and continuous improvement processes. These problems can be an obstacle to the complete adherence to the requirements of the standard. Thus, the proposed study will help to fill the gap between theory and practice by diagnosing the current weaknesses, finding the areas of improvement, and offering the systematic solutions to the identified issues with the 8D methodology. The importance of the given research is that it helps to fill the gap between the international quality management standards and the practical educational practice. The study can be of great benefit to policymakers, administrators, and quality assurance practitioners who aim at facilitating effective educational governance by analyzing the implementation of ISO 21001:2018 in an academic institution through the 8D methodology. Moreover, the results can inform institutions to embrace the best practices that are in tandem with international standards, hence enhancing competitiveness and guaranteeing sustainability of educational excellence.

2. Research Methodology

2.1 Research problem

With the current rise in competition in the academic and educational sphere, educational institutions have been compelled to adhere to international standards and systems to guarantee the quality of education and attain the intended educational goals. The ISO 21001:2018 is regarded as one of the most popular international standards that are designed to enhance educational processes and educational results through offering a comprehensive framework of managing educational organizations effectively and efficiently. Nevertheless, the implementation of this standard is still a big challenge in most educational institutions in most countries including Iraq. This has been caused by a number of factors which include poor resources, lack of specialized quality competencies, and lack of strategic vision in the administrative leadership. Therefore, actual gaps between the requirements of the standard and the real state of educational performance arise, and the research issue can be outlined with the help of the following questions:

1. What is the level of implementation of ISO 21001:2018in the College of Business Economics?.
2. Is there a gap between the actual reality of the College of Business Economics and the requirements of ISO 21001:2018:2018?.
3. What are the strengths and weaknesses of ISO 21001:2018requirements in the College of Business Economics?.
4. How can the 8D methodology be employed to address and bridge the gap between the actual reality in the College of Business Economics and the requirements of ISO 21001:2018?.

2.2. Research Importance

The importance of the research lies in the following:

1. Research helps educational institutions, such as the College of Business and Economics, identify strengths and weaknesses in educational performance, contributing to improving education quality.
2. The research provides practical recommendations enabling the college to reduce the gap between reality and specification requirements, improving educational and administrative performance efficiency.
3. Through improving the quality of educational processes, the research contributes to enhancing the satisfaction of students, faculty members, and parents, raising the college's level.
4. Research is an effective tool for educational administrations to make decisions based on scientific foundations to improve educational performance.
5. Research helps guide the college towards adopting practices that facilitate cooperation with donors or international partners who require compliance with global quality standards such as ISO 21001:2018.

2.3. Research objective

The research objectives are as follows:

1. To evaluate the level of implementation of ISO 21001:2018in the College of Business Economics.
2. To identify and analyze the gap between the actual performance of the College of Business Economics and the requirements of ISO 21001:2018:2018.
3. To explore the strengths and weaknesses of ISO 21001:2018implementation in the College of Business Economics.
4. Identify how the 8D methodology can be employed to address and bridge the gap between the actual reality in the College of Business Economics and the requirements of ISO 21001:2018.

2.4: Data Analysis Methods

The research used a complete set of statistical methods to make the results of the research robust. In the case of the Likert-scale items, we determined means, standard deviations, and frequency distributions to determine the

extent to which the institutions were in compliance with the ISO 21001:2018 requirements. Moreover, gap analysis was conducted: all the elements of the standard were rated, and the rate of compliance and non-compliance were presented in the form of percentages. All these descriptive and comparative approaches enabled us to measure the level of quality-standard implementation, identify areas of weakness, and focus on areas of priority to continue improving the situation in educational settings.

The following statistical tools were used to measure the items of the specification ISO 21001:2018after determining the scores for each item in light of the answers to the checklists. The following equations were used to extract the percentage of conformity as follows [7]:

1. Calculating the approximate rate of conformity of actual implementation and documentation of the specification ISO 21001:2018in The College of Business and Economics, by extracting the weighted arithmetic mean according to the following equation:

$$\text{Weighted arithmetic mean} = \frac{\text{requencies} \times \text{weights}}{\text{Sum of frequencies}}$$

2. The percentage of the extent to which the application and actual documentation match the requirements according to the specification under investigation and based on the following equation:

$$\text{The percentage of matching} = \frac{\text{Arithmetic mean}}{(\text{highest score on the scale})(6)} \times 100\%$$

As the highest weight in the seven-point scale is (6) points and represents the state of full compliance with the requirements of the operating clause.

Calculating the gap size through the following equation: Gap size = 1 - Percentage of compliance.

Checklists were prepared for the operation clause according to the specification ISO 21001:2018:2018. The seven-point Likert scale was determined according to weights from (0 - 6) as shown in Table (1):

Table 1: The Seven-Point Scale

Not applied, undocumented	Partially applied, undocumented	Partially applied, partially documented	Partially applied, fully documented	Fully applied, undocumented	Fully applied, partially documented	Fully applied, fully documented
0	1	2	3	4	5	6

Source: [6].

2.5 Some previous studies

Table (2) shows some previous studies as follows:

Table 2: Some previous studies

A. study (Kayyali & Khosla 2021)	
Study Name	"Globalization and Internationalization: ISO 21001 as a Trigger and Prime Key for Quality Assurance of Higher Education Institutions"
Study Location	The European Union, the United States of America, Canada, and other countries.
Study Problem	The study's central problem revolves around the absence of a unified international quality management system in higher education institutions, despite the multitude of academic accreditation and quality assurance bodies worldwide.
Study Methodology	Descriptive Analytical Method
Study Objectives	Analyzing the relationship between globalization and educational quality in higher education institutions. Explaining the role of the ISO 21001 international standard in developing quality assurance systems in higher education institutions globally. Highlighting the potential challenges that educational institutions may face during the implementation of the new standard.
Key Findings	The ISO 21001 is a qualitative breakthrough in the notion of educational quality management, offering an all-encompassing management framework that can be used in any educational institution of any level. The standard is a supplement to the principles of academic accreditation but is more broad and flexible because it emphasizes the management of the educational processes and not only the external assessment. The introduction of ISO 21001 helps to build the trust between educational institutions and stakeholders (students, parents, the community, and the labor market). The standard assists in balancing the results of education with the requirements of the labor market through the quality management and continuous improvement approach.
B. study (Caco & Gani ,2024)	
Study Name	Implementation Strategy of ISO 21001:2018: 2018-Based Service Quality Management Standards at SMK Telkom Makassar.
Study Location	Indonesia
Study Problem	The problem addressed in this study is the need to develop and improve the quality of education in light of increasing global competition resulting from globalization and rapid development in the fields of science and technology.
Study Methodology	Qualitative/Naturalistic Approach
Study Objectives	Review of the implementation plan of ISO 21001:2018 in SMK Telkom Makassar School. Assessment of the effectiveness of the implementation of quality management system (according to ISO 9001:2015) on enhancing the educational services. Determination of factors that lead to better quality of education such as building of teacher and administrative staff competencies. Suggestions on improving the quality of education using international standards of school management.
Key Findings	The introduction of the ISO 21001:2018 quality management system in the SMK Telkom Makassar School has proven the evident quality and equity of education and the increased access to it. This advancement in education quality was associated with the emergence of teaching competencies and school management. The management system in schools helped to

	enhance the autonomy and accountability in the school. Supervision and monitoring are vital components to maintain quality and need additional focus. The research established that the adoption of ISO standards in education increases the level of trust of people in the institution and the image and organizational performance.
C. study (Kovalenko *et al*, 2020)	
Study Name	General Aspects of Introduction of Management Systems in Educational Organizations in Pursuance of ISO 21001:2018
Study Location	Conducted in the context of European educational institutions
Study Problem	The need to analyze the requirements and standards for implementing the ISO 21001:2018 educational management system, and to clarify how it contributes to improving education management, ensuring the quality of educational processes, and meeting the needs of learners and stakeholders.
Study Methodology	Analytical-descriptive approach
Study Objectives	Analysis of the requirements and characteristics of implementing the ISO 21001:2018 international standard in educational institutions. Highlighting the benefits of implementing the management system in educational institutions for improved performance and overall satisfaction. Explaining how compliance with the standard's requirements can enhance the efficiency of education management systems.
Key Findings	Improving the efficiency of educational management systems. Enhancing continuous monitoring of processes and adherence to the educational mission. Increasing the satisfaction of learners, staff, and stakeholders. Adopting a personalized approach to education and increasing investment and participation.
D. study (Elangovan *et al*,2021)	
Study Name	8D Problem Solving Methodology: Continuous Improvement in Automation Organization
Study Location	Manufacturing company producing and assembling wire harnesses - Malaysia
Study Problem	The percentage of defective products in the production and assembly process of wire harnesses is high, with the defect rate averaging 51.39% during the period from July to September 2020, especially in the crimping process.
Study Methodology	8D Problem Solving Methodology and Pareto Analysis
Study Objectives	Analysis of quality problems in the wire braiding production process. Identification of the root causes of high rejection rates in the crimping process. Proposal of practical solutions to reduce rejection rates and improve quality and reliability.
Key Findings	areto analysis revealed that the most significant defect was contact crimping, accounting for 66.67% of cases. The root cause was conductor movement near the cable string, leading to wire breakage at high speeds. Installing a mounting bracket to reduce wire vibration and using appropriate crimping tools were recommended. Following the implementation of these solutions, the rejection rate decreased to 0.93% in December 2020, down from an average of 66.67% over the preceding three months.

Source: Based on the study mentioned above [1]. [2]. [3]. [5].

3. Literature Review

3.1. Overview of the Educational Institutions Management System

The Educational Institutions Management System (EIMS) is the structure that holds all the elements of a learning organization teachers, students, administrative processes, and resource management together in an understandable, high-quality and sustainable educational experience. [8].

The Board of Directors (or some governing body) is at the top of the administrative hierarchy. The board reports to the owners and regulatory agencies and is elected or appointed According to the procedures followed in the country to ensure that the institution is compliant with all related standards and policies. [9].

Academy Councils have a central role to play in the academic world. As institutions are guided by transparent and faculty engaged processes, these councils serve to connect strategic goals of the institution and daily teaching and research. They collaboratively design academic plans, update curricula, check quality of instruction and promote performance-enhancing initiatives. [10].

The key figure in the academic leadership is the Head of the Academy: he/she organizes the learning process, ensures the quality of programs and manages research and teaching within departments. One of the most important responsibilities is the creation and the staffing of the Academy Councils, where the selection of the members is done on the basis of experience and expertise. [11].

Continuous improvement in educational quality is made possible through four core processes, namely, management of policies and resources, ensuring educational quality is aligned with labor-market demands, and ensuring that the accreditation standards are strictly observed. However, institutions are increasingly being challenged with governmental requirements, changing assessment models, and cultural relative requirements in rapidly moving learning environments. [12].

Flexibility is even needed more by the emergence of non-formal and self-directed learning. To appeal to a digitally-native generation, Universities have to invest in digital tools, embrace new teaching techniques and re-brand their programs. [13].

3.2 Introduction to ISO 21001:2018

ISO 21001:2018, known as Educational Organizations, defines the main concepts and principles governing the field of educational activities, guidelines for the development of educational administrative systems that meet a variety of cultural, regulatory, and legal conditions. It is a tool for organizing in accordance with ISO 21001:2018:2018, which sets out the management system standard. ISO 21001:2018 is a modified version of the International Quality Management System for education [3]. Developed on the basis of a variety of educational management concepts, it is currently translated into 15 official languages. ISO 21001:2018 is therefore a comprehensive, flexible standard that provides a variety of advisories for educational organizations [1].

In fact, the standard management system was initially designed to address the need to improve the efficiency and

effectiveness of an organization's operational management. Based on the underlying ISO 9001, ISO 21001:2018 has been adapted to the specificities of educational organizations and the diversity of their systems, recognizing that educational organizations are different from other types of organizations because of their focus on the provision of services as well as the cultivation and transmission of knowledge, skills, and attitudes [14]. Therefore, we need a good management system that can enhance the quality of the educational system, improving the quality of education and teaching and learning. International standards have been established in several languages and are being used by several educational organizations in North and South regions, including Africa, Asia, and Latin America, for certification missions, providing additional assurance for internationalization and education. [15]. [16].

The ISO 21001:2018standard enables all types of educational organizations to improve their management system. It provides practical guidance to enhance the system and achieve the quality of education. The main purpose of implementation is to increase the capabilities of educational organizations to manage an effective educational framework. The coveted goal is to fulfill the satisfaction of stakeholders, i.e., students and learners. Quality is learning to meet the desires and expectations of the general public. For educational institutions, top quality is reaching quality instructional outcomes and functional effects within the world of work. This International Standard is intended for stakeholder representatives in instructional organizations; people who are involved in external accreditation, certification, or registration, or internal scrutiny of an academic organization and finance involved in the education industry [17].

Educational organizations must determine, plan, implement, and monitor Quality Management Systems, and this calls for ensuring it is part of the top-level management plan and is fully documented. This chapter has discussed the characteristics of educational institutions and the need for alignment of operational management with educational governance [18].It aims to show the requirements and expectations of stakeholders in this market. Improvement offers new opportunities for companies that are uniquely positioned and provide high-quality services. Continuous improvement in educational institutions is the most effective way to create competitive opportunities. ISO 21001:2018 is a great opportunity and an advantage [19].This study presents a systematic approach followed by a method for incorporating the ISO 21001:2018 standard requirements into the management system of an educational organization using the quality philosophy theory of management system fundamentals. The systematic approach encompasses three components: the first involves utilizing the most recent ISO 21001:2018 standard checklist [9].

3.3. Key Requirements of ISO 21001:2018

Key Requirements of ISO 21001:2018 to achieve their service or product targets, organizations are expected to establish a quality management system, map their operations and supportive processes, and be guided by the quality management system, with the objective of ensuring controlled operation and making sure they are functioning as intended. This control is exercised so that processes can fulfill the requirements of ISO 21001:2018, which are nowadays considered to be essential for an educational quality management system. Present systems that are not up to this standard soon cease to function effectively. The development and implementation of an educational organization management system are the responsibility of the institution's management, regardless of what stage the educational program is at or the degree of its complexity, so that services meet goals, both in terms of learner, parent, and other stakeholder satisfaction, as well as the values of the system itself concerning commitment to its stated aims [20]. All the Best Practice in Education Criteria are recommended for use with reports and are structured in line with ISO 21001:2018 and represent elements within quality management systems in educational organization management systems. There are eight clauses within ISO 21001:2018 requirements in education, and all are interconnected. Here, we present the headings of the eight clauses within ISO 21001:2018 Requirements in Education [21]. All the headings are also the name for one of the Best Practice in Education Criteria. This approach enables educational institutions or organizations from all sectors to strategically place the quality management system and audit each or all of the headings at any time. Plus, it will inform whether you are getting it right, or at least if not, where remedial work should be most appropriately focused in your own institution, through self-evaluation [22].

Implementation of a management system as per ISO 21001:2018 is a complex process that is associated with several technical and procedural dimensions that organizations must consider and integrate in the development and supervision of the system, as well as in its continual improvement. This is very challenging due to reasons including resistance to change, financial and human resource constraints, and inadequate training. Moreover, sometimes problems occur in aligning the existing system with established requirements. This is a crucial issue that needs to be managed properly in the implementation process of the system. This is why organizations have concerns when initiating the work on the system and exploring ways to enhance organizational readiness [23]. Based on responses from quality professionals at educational institutions, institutional administrators/stakeholders, and undergraduate, graduate, and doctoral students observing the system, the risks in monitoring the standard in detail may be seen as very high. This can lead to sanctions being imposed on the institutional tutors in the coordination’s and also on the entire educational institution [24].The most difficult issue is in aligning work processes according to the requirements established by the standard. Besides, it should be taken into account that—in the case of higher education institutions—there are already promotional systems in place for the guidance of students, on which teaching staff has a predesigned timetable available for performance measurement. Further, students can refuse the tutoring that is legally stipulated according to the standard, which makes it even more complex to put it into practice. Managing these processes in an involved and intricate environment can lead to numerous challenges for the organization [25]. The core of the ISO 21001:2018 the international standard of educational management systems is the Plan-Do-Check-Act (PDCA) cycle. It makes the abstract clauses of the standard a living breathing process that makes schools, universities, training providers and other learning organization’s continue to move. The following is a brief yet descriptive tour of each PDCA step and its correspondence to the major

clauses of the standard. The standard's clauses can be illustrated through Figure (1).

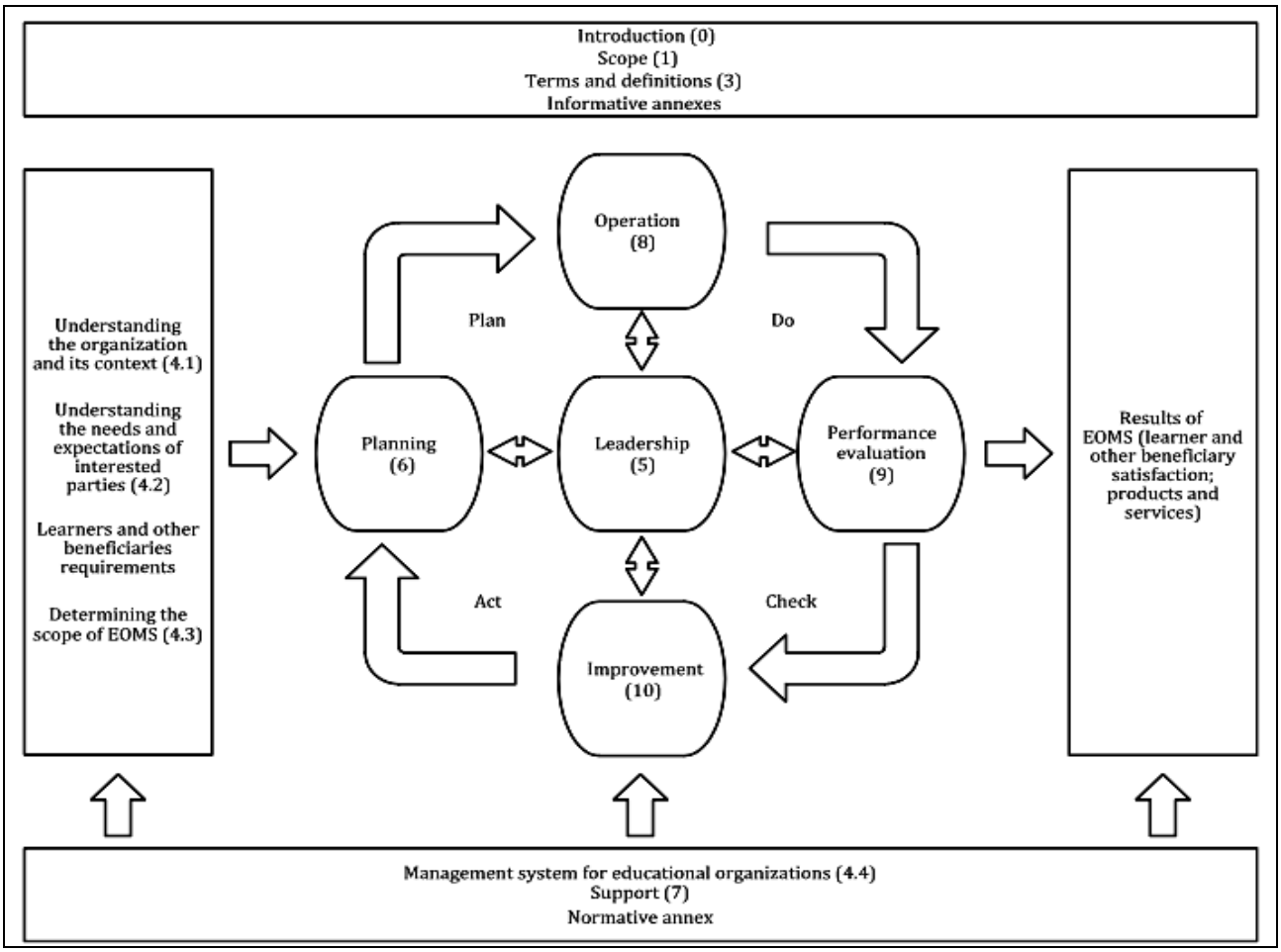

Fig 1: Specification requirements ISO 21001:2018

3.4. Importance of ISO 21001:2018

Definition In educational institutions, many activities such as teaching and learning, research, community outreach, and stakeholder engagement take place. These activities result in various educational outputs. This study will focus on the performance of output quality generated by the educational process and system, such as qualifications, experience gained, knowledge, skills, abilities, and attitudes. These outputs meet the education defined in general standards and specific standards through a variety of educational activities. In short, the quality of educational performance is the representation of input and processes after implementation [26]. Importance Critical questions commonly raised about educational performance analysis are who uses it and for what purposes. There are many perspectives of the educational performance analysis users. First, educators and administrative leaders use it to make decisions that affect many other people in the organizations. As stewards, they should make informed decisions based on organizational data. Thus, they use educational performance results to assess and improve the effectiveness of the teaching and learning process. Next, it is important for an internal perspective of the system so that the current state or condition of the educational organization can be determined [27]. Therefore, educators must often communicate with accountability reports about student achievement to their boards, communities, and students. By providing information in the form of data for analysis, individuals in charge of monitoring are able to prove that the funds are used effectively. Another perspective is that of the student. By knowing where their comparative position is in progress, the student will be able to compete better and represent their worth to the study program. Finally, students and the public hold the educational organization accountable. Both stakeholders need reassurance that instruction is of high quality and clearly enforces performance standards for student [28]. The use of educational performance measurement by various elements of the stakeholders of an educational organization contributes to transparency, particularly on an internal or domestic basis. Moreover, the quality of educational performance measurement can be a benchmark for universities in designing more focused and targeted remedial programs. It may also serve as strategic data to a more target and narrow policy to improve the competence of graduates. Reflected in the performance of educational organizations, all of these performance elements share a parity joint between the results and the expectations [29]. It is also worth noting that when the main aim of the educational organizations is to serve the community, the performance elements must respond to the expectations of the students. Lastly, to achieve performance excellence in the educational process, the impacts must be able to add to high educational effectiveness and efficiency [18]. The ISO 21001: 2018 is a global standard that is specifically applied to the management system of educational organizations, which offers a systematized approach to quality education

and the effective and sustainable attainment of educational goals. The standard aims at enhancing the experience of the learners, the efficiency of the educational institutions and the consistency of the educational processes in accordance with the principles of quality and continuous improvement. Why is ISO 21001:2018 important [30].

3. **Improving the quality of education:** Assists institutions to build up the educational environment founded on data and ongoing examination of educational performance.
4. **Improving learner and stakeholder satisfaction:** Ensures satisfaction of the students, faculty members and parents by providing an effective education management structure.
5. **Uniformity in practices in education:** ISO 21001:2018 allows institutions to use the same principles of quality management to minimize the differences in educational practices.
6. **Compliance with global standards:** Enhances educational institutions' ability to compete globally by aligning their operations with international best practices.
7. **Supporting innovation and continuous improvement:** Encourages sustainable methodology in evaluating educational performance and identifying development opportunities.

3.5. Understanding the 8D Methodology

8D or eight disciplines methodology is a problem-solving process. It is about product and service quality management. It was conceived and developed at a major automotive company. This methodology is used to elucidate identified problems in products or services and then to implement decisions needed [31]. Eight disciplines, the Ds, is a problem-solving methodology for product design and manufacturing. 8D would much more systematically address complex issues that seem to need a whole team of people. By following the 8D process, a team (usually cross-functional) can work together to identify, correct, and prevent problems in a structured manner [32].

The disciplines are: D1 - Establish a team; D2 - Describe the problem; D3 - Interim containment action; D4 - Root cause analysis; D5 - Choose and verify permanent corrective action; D6 - Identify corrective actions; D7 - Preventive actions; D8 - Congratulate the team [33].The 8D method of problem-solving is appropriate in "cause unknown" situations and is not the right tool if concerns are related to decision-making or problem-solving processes. Critical requirements needed in the use of the 8D method are rigor in the use of the method, the documentation, and the statistical approach used to generate supporting data - an easier task in theory than in practice [5]. Education management systems need to find the means to solve the 8D method, as it reveals and addresses problems often unknown in undertaking their mandated outputs, mismanagement of scarce resources, and failure to define outputs. Constructing and reconstructing these various steps opens an accountability environment focusing energies into continuous improvement [34].

The 8D method is based around disciplines from one to eight. Make sure the problem, the corrective, and preventive actions are clearly and logically divided between these different headings which reinforce an organized culture [35]. The 8D method is designed and used to integrate the requirements of the new International Standard, namely the Educational Organizations Management System. By integrating these requirements, the contributions of educational organizations using the methodology of 8D problem-solving can be improved, so that the educational organizations are not trapped in the formulation of vision, mission, and educational goals that do not involve input from stakeholders, the attitude to focus on charity, the attitude of various bureaucracy, as well as not solving the problem of staff and students [36].

4. The practical side of the study

This aspect aims to present and analyze the results of the field research checklist, based on the answers obtained by the researcher from personal interviews with some managers and employees, as well as reviewing records and documents related to the College of Business Economics at Al-Nahrain University, in order to reach the arithmetic mean to determine the actual implementation rate of ISO 21001:2018requirements and the implementation gap for each item of the checklist. ISO 21001:2018 is divided into seven main clauses as follows:

4.1 Organizational Context

The fourth item deals with the comprehension of the organization and its environment, which is one of the pillars of the management of educational institutions to make sure that the goals are in line with the needs of the stakeholders. Table (3) shows that the overall mean of organizational context was (4.12), where implementation rate was (68%) and gap was (32%). Its strengths and weaknesses can be determined as the following:

Strengths

1. **Awareness of organizational context:** Data shows that the College of Business Economics pays significant attention to understanding its operating context (75% implementation rate for item 4.1), reflecting good awareness of internal and external variables.
2. **Stakeholder engagement:** The college achieves a good implementation rate (72%) in identifying stakeholder needs, including students, faculty, and stakeholders, indicating its recognition of these relationships' importance.
3. **Educational institutions management system:** The implementation rate for item 4.4 (69%) reflects the existence of administrative systems that contribute to achieving academic and organizational objectives.

Weaknesses

Defining the scope of educational institutions management systems: Item 4.3 achieves a relatively low implementation rate (58%), indicating challenges faced by the college in defining all activities and services within the management system.

Table 3: Measuring the implementation rate for the organizational context item

Item	4.Organizational Context Item	Arithmetic Mean	Percentage of Implementation	Gap Percentage
4.1	Understanding the organization and its context	4,5	75%	25%
4.2	Understanding the needs and expectations of stakeholders	4,33	72%	28%
4.3	Defining the scope of educational institution management systems	3,5	58%	42%
4.4	Educational institution management system	4,14	69%	31%
	Total	4.12	68%	32%

Source: prepared by the researcher based on the results

4.2 Leadership

The fifth provision "Leadership" deals with the significance of management that should be focused on the attainment of the goals of the educational institution and the effectiveness of the quality management system. In table (4), the leadership clause had a total mean of (3.53), the percentage of implementation was (58%), and the percentage of gap was (42%). The strengths and weaknesses may be determined as the following:

Strengths

1. **Leadership Commitment:** Leadership and commitment clause (5.1) recorded a high implementation rate (75%), reflecting top management's commitment to achieving educational objectives and ensuring performance quality.
2. **Effective Policies:** Policy clause (5.2) showed a good implementation rate (67%), indicating the presence of policies supporting academic and organizational objectives.

Weaknesses

Organizational Roles and Authorities: The organizational roles, authorities, and responsibilities clause (5.3) recorded a very low implementation rate (36%), indicating a clear weakness in the distribution of tasks and responsibilities.

Table 4: Measuring the Implementation Rate of Leadership Clause

Item	5. Leadership	Arithmetic Mean	Percentage of Implementation	Gap Percentage
5.1	Leadership and Commitment	4,46	75%	25%
5.2	Policy	4	67%	33%
5.3	Organizational Roles, Powers and Responsibilities	2,14	36%	64%
	Total	3.53	58%	42%

Source: prepared by the researcher based on the results

4.3 Planning

Planning is regarded as one of the initial stages of the operational sustainability and executing the vision and mission of the educational institution according to the requirements of the stakeholders and in the context of the changes in the future. Table (5) provided the overall mean in the planning clause of (4.89), application rate (81%), and gap (19%). The strengths and weaknesses may be determined as the following:

Strengths

1. **Procedures for exploiting opportunities and addressing risks:** Item (6.1) recorded a very high implementation rate (89%), indicating the college's ability to identify and effectively utilize risks and opportunities.
2. **Institution objectives and planning for their achievement:** Item (6.2) achieved an excellent implementation rate (97%), reflecting clear academic and organizational objectives and good planning for their implementation.

Weaknesses

1. **Planning for changes:** Item (6.3) showed relative weakness with an implementation rate of (59%), indicating challenges in dealing with and planning responses to future changes.
2. **Gap in planning for changes:** The significant gap in this item (41%) highlights the need to improve mechanisms related to flexibility and adaptation.

Table 5: Measuring the implementation rate for the planning clause

Item	6. planning	Arithmetic Mean	Percentage of Implementation	Gap Percentage
6.1	Opportunity Seizing Procedures Risk Management	5,33	89%	11%
6.2	Educational Institution Goals and Planning to Achieve Them	5,83	97%	3%
6.3	Planning for Changes	3,5	59%	41%
	Total	4.89	81%	19%

Source: prepared by the researcher based on the results

4.4 Support

The support clause as per ISO 21001:2018 is intent on making the processes have the resources and suitable competence in order to make the process effective. Table (6), shows that the support clause had a mean of (3.386) and the implementation rate (%56) and the gap rate (%44). The strengths and weaknesses may be determined as the following:

Strengths

1. **Competence (Clause 7.2):** This clause achieved a good implementation rate (67%) with a relatively small gap (33%), reflecting the college's interest in developing staff skills and ensuring they possess the necessary competence to support operations and achieve objectives.
2. **Documented Information (Clause 7.5):** Recorded a

high implementation rate (70%) with a small gap (30%), indicating the existence of a reliable system for managing and documenting information, which enhances process sustainability and transparency.

Weaknesses

1. **Awareness (Clause 7.3):** Recorded a low implementation rate (39%), reflecting weakness in communicating the importance of objectives and requirements to employees and stakeholders. The large gap (63%) shows an urgent need to enhance awareness and training programs.
2. **Communication (Clause 7.4):** Implementation rate reached (50%) with an equal gap (50%), indicating challenges in building effective communication channels that facilitate coordination between different parties.
3. **Resources (Clause 7.1):** Moderate implementation rate (57%) with a gap (43%), indicating a need to improve the provision of material and human resources in line with operational requirements.

Table 6: Measuring Implementation Rate for Support Clause

Item	7. Support	Arithmetic Mean	Percentage of Implementation	Gap Percentage
7.1	Resources	3,42	57%	43%
7.2	Competence	4	67%	33%
7.3	Awareness	2,33	39%	63%
7.4	Communication	3	50%	50%
7.5	Documented Information	4,18	70%	30%
	Total	3.386	56%	44%

Source: prepared by the researcher based on the results

4.5: Operation

Operation clause of ISO 21001:2018 is aimed at controlling and performing operational procedures in educational institutions in order to provide educational products and services that match the requirements of stakeholders and accomplish the educational goals. This provision covers a spectrum of activities that begin with planning and design, implementation, and monitoring and control of the quality of the educational outputs. Operation clause obtained an overall mean of (4.3057) through Table (7) with an implementation rate of (72) and a gap of (28). The weaknesses and strengths may be stated as follows:

Strengths

1. **Control of nonconforming educational outputs (8.7):** Recorded the highest implementation rate (92%) and lowest gap (8%), reflecting the system's effectiveness in handling and correcting nonconforming outputs, contributing to overall quality improvement.
2. **Release of educational products and services (8.6):** Recorded a high implementation rate (83%) with a small gap (17%), showing the college's ability to deliver educational services efficiently and meet stakeholder needs.
3. **Design and development of educational products and services (8.3):** High implementation rate (80%) and low gap (20%), indicating a strong methodology for designing educational products and services.

Weaknesses

1. **Control of externally provided processes, products and educational services (8.4):** Recorded the lowest implementation rate (43%) and highest gap (57%), indicating significant challenges in supervising externally provided educational processes, requiring improved control mechanisms.
2. **Operational planning and control (8.1):** Low implementation rate (58%) and relatively high gap (42%), highlighting the need to enhance planning and control processes to ensure effective operational implementation.

Table 7: Measuring Implementation Rate for Operation Clause

Item	8. Operation	Arithmetic Mean	Percentage of Implementation	Gap Percentage
8.1	Operational Planning and Control	3,5	58%	42%
8.2	Requirements for Educational Products and Services	3,75	63%	37%
8.3	Design and Development of Educational Products and Services	4,8	80%	20%
8.4	Monitoring of Externally Provided Educational Processes, Products and Services	2,58	43%	57%
8.5	Delivery of Educational Products and Services	4,59	76%	24%
8.6	Launching of Educational Products and Services	5,33	83%	17%
8.7	Control of Non-Conforming Educational Outputs	5,6	92%	8%
	Total	4.3057	72%	28%

Source: prepared by the researcher based on the results

4.6: Performance Evaluation

The performance evaluation provision of ISO 21001:2018 is aimed at measuring and assessing the performance of educational processes in order to guarantee the attainment of institutional goals and constant improvement. This provision is necessary in assessing effectiveness and efficiency of management and education system using data collection and analysis and factual decision-making. The operation clause had an overall mean of (4.3057) according to the table (8), an implementation rate of (72) and a gap of (28). The weaknesses and strengths may be stated as follows:

Strengths

1. **Monitoring, measurement, analysis, and evaluation (9.1):** Recorded the highest implementation rate (89%) with the lowest gap (11%), highlighting the existence of strong and organized mechanisms for monitoring, analyzing, and evaluating processes, contributing to informed decision-making.
2. **Internal audit (9.2):** Good implementation rate (78%) with an acceptable gap (22%), showing an effective internal audit system that contributes to periodic identification of strengths and weaknesses.

Weaknesses

Management review (9.3): Recorded the lowest implementation rate (75%) and highest gap (25%) among this section's clauses, indicating the need to enhance management review mechanisms to improve strategic objectives monitoring and ensure better response to changes.

Table 8: Measuring Implementation Rate for Performance Evaluation Clause

Item	9. Performance Evaluation	Arithmetic Mean	Percentage of Implementation	Gap Percentage
9.1	Monitoring, Measurement, Analysis and Evaluation	5,33	89%	11%
9.2	Internal Audit	4,66	78%	22%
9.3	Management Review	4,5	75%	25%
	Total	4.83	81%	19%

Source: prepared by the researcher based on the results

4.7 Improvement

The improvement clause based on Education Standard 21001 is aimed at improving the efficiency of the performance by introducing corrective measures, continuous improvements, and utilizing the opportunities available to enhance academic and administrative processes and services. Table (9) indicates that the improvement clause had a total mean of (4.89) and implementation rate of (81%), and a gap of (19%). The weaknesses and strengths may be stated as follows:

Strengths

1. **Corrective actions for non-conformity cases (10.1):** Recorded a high implementation rate (83%) with a small gap (17%), reflecting the system's efficiency in identifying and quickly addressing non-conformity cases effectively.
2. **Continuous improvement (10.2) and improvement opportunities (10.3):** Both clauses recorded a good implementation rate (78%) with a gap (22%), indicating a positive trend toward developing institutional performance and investing in available improvement opportunities.

Weaknesses

1. **Continuous improvement (10.2):** Despite good performance, the gap (22%) shows the need to enhance continuous improvement methodologies to ensure constant progress.
2. **Improvement opportunities (10.3):** The gap percentage (22%) highlights that there are potentials not fully utilized for improving processes and services.

Table 9: Measuring Implementation Rate Improvement Clause

Item	10. Improvement	Arithmetic Mean	Percentage of Implementation	Gap Percentage
10.1	Corrective Actions for Non-Conformities	5	83%	17%
10.2	Continuous Improvement	4,66	78%	22%
10.3	Opportunities for Improvement	4,66	78%	22%
	Total	4.77	80%	20%

Source: prepared by the researcher based on the results

The educational system according to ISO 21001:2018showed a good performance level, achieving an overall average of 4.20, with a general implementation rate of 70%, indicating the presence of quality-supporting systems and policies in many areas. However, the total gap percentage reached 30 %, which indicates significant opportunities for improvement in some items. As shown in the table (10) and figure (2):

Table 10: Overall Results for the Operation Item

NO	Total results for the operational item		Evaluation scores for actual application and documentation		
	Requirement number	Requirement name	Weighted arithmetic mean	Percentage of compliance	Gap size
1	4	Organizational Context	4.12	68%	32%
2	5	Leadership	3.53	58%	42%
3	6	Planning	4.89	81%	19%
4	7	Support	3.386	56%	44%
5	8	Operation	4.3057	72%	28%
6	9	Performance Evaluation	4.83	81%	19%
7	10	Improvement	4.77	80%	20%
Total matching percentage and size of the gap				70%	30%

Source: Prepared by the researcher based on practical data.

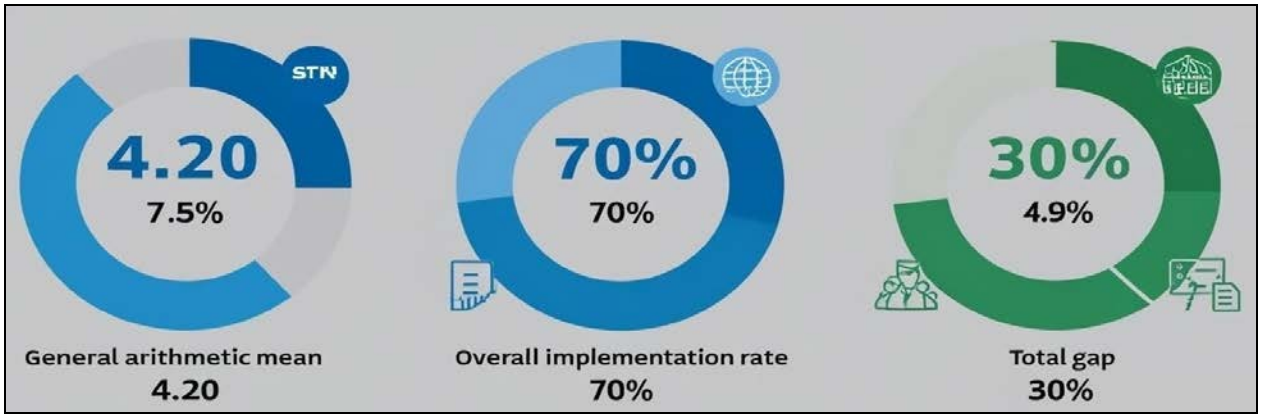

Fig 2: Level of application of the specification ISO 21001:2018

Table (11) illustrates how gaps are reduced and the requirements of ISO 21001:2018 are implemented using the 8D methodology. The 8D methodology is systematic, which starts with a team of people (D1) assembled to investigate the situation. The problem (D2) is then described clearly in order to identify the weaknesses accurately. Then, temporary solutions (D3) are taken to reduce and avoid the issue, such as updating documents or redistributing tasks when necessary. This is then followed by a root cause analysis (D4) to reveal the real causes of the gaps i.e. lack of training or resources. After identifying the root causes, corrective solutions (D5) are then chosen and these solutions may include strengthening management policies, training plans, or enhancing the control system. After identifying solutions, implementation (D6) is done where the solutions are implemented with care. This can entail the examination of the organizational setup, simplification of the operations or the adoption of dynamic planning plans. Lastly, to make improvements sustainable, preventative measures (D7) are followed, such as the creation of periodic review mechanisms or the creation of continuous awareness and communication strategies. Lastly, the outcomes (D8) are checked to see how effective the solutions implemented are and to document the progress. The table explains how the 8D methodology enables organizations to deal with gaps in a systematic and holistic manner, thus, enhancing the quality of processes and organizational performance. The document is a strategic guide that can assist learning institutions become more effective and be able to meet international standards.

Table 11: 8D Methodology for Gap Reduction

Item	Step (8D)	Description	Actions to narrow the gap
Organizational Context	D1	Form a team.	Form a multidisciplinary team to identify understanding gaps.
	D2	Describe the problem.	Analyze weaknesses such as poor scope definition.
	D3	Interim actions.	Prepare temporary scope definitions and ensure effective communication.
	D4	Root cause analysis.	Analyze causes such as lack of training or resources.
	D5	Select solutions.	Develop guidance manual to improve management understanding.
	D6	Implement solutions.	Implement new scope definitions and train staff.
	D7	Preventive actions.	Establish periodic review mechanism to update scope.
	D8	Review results.	Evaluate remaining gaps and document improvements.
Leadership	D1	Form a team.	Define leadership responsibilities and organizational roles.
	D2	Describe the problem.	Document gaps in role and authority distribution.
	D3	Interim actions.	Temporarily redistribute responsibilities to ensure efficiency.
	D4	Root cause analysis.	Review organizational structure to identify shortcomings.
	D5	Select solutions.	Develop clear job descriptions and train leaders.
	D6	Implement solutions.	Implement new system for roles and authorities.
	D7	Preventive actions.	Establish ongoing documentation policy to update responsibilities.
	D8	Review results.	Evaluate leadership performance improvement.
planning	D1	Form a team.	Select specialized team to analyze planning weaknesses.
	D2	Describe the problem.	Identify lack of flexibility in handling changes.
	D3	Interim actions.	Prepare temporary alternative plans to address changes.
	D4	Root cause analysis.	Analyze planning strategies to identify weaknesses.
	D5	Select solutions.	Develop dynamic plans aligned with risks and opportunities.
	D6	Implement solutions.	Implement updated plans and monitor execution.
	D7	Preventive actions.	Establish periodic planning reviews and adapt to changes.
	D8	Review results.	Analyze impact of new plans and improve them.
Support Clause	D1	Form a team.	Team to study resource provision and communication.
	D2	Describe the problem.	Identify weak awareness and communication channels.
	D3	Interim actions.	Temporarily improve resource management and launch awareness campaigns.
	D4	Root cause analysis.	Study causes of weak awareness and internal communication.
	D5	Select solutions.	Prepare training programs and improve communication methods.
	D6	Implement solutions.	Implement training and update communication channels.
	D7	Preventive actions.	Establish ongoing awareness plans and enhance competencies.
	D8	Review results.	Analyze training and awareness results.

Operation	D1	Form a team.	Create team to improve operational processes.
	D2	Describe the problem.	Identify weak control of external operations and outputs.
	D3	Interim actions.	Conduct temporary reviews of current processes.
	D4	Root cause analysis.	Analyze processes to identify deficiencies.
	D5	Select solutions.	Improve operational processes and output control.
	D6	Implement solutions.	Implement updated operational processes.
	D7	Preventive actions.	Establish periodic reviews of operational processes.
	D8	Review results.	Analyze effectiveness of updated processes.
Performance Evaluation	D1	Form a team.	Team to analyze measurement and evaluation processes.
	D2	Describe the problem.	Identify weak management review and internal audit.
	D3	Interim actions.	Temporarily enhance internal audit.
	D4	Root cause analysis.	Analyze processes to identify evaluation weaknesses.
	D5	Select solutions.	Improve evaluation mechanisms and enhance internal audit.
	D6	Implement solutions.	Implement updated measurement and evaluation systems.
	D7	Preventive actions.	Prepare sustainable improvement plans for evaluation.
	D8	Review results.	Analyze results after updates.
Improvement	D1	Form a team.	Form team to analyze improvement opportunities.
	D2	Describe the problem.	Identify weakness in utilizing improvement opportunities.
	D3	Interim actions.	Prepare short-term performance improvement plans.
	D4	Root cause analysis.	Study reasons for not utilizing opportunities.
	D5	Select solutions.	Develop long-term improvement plans.
	D6	Implement solutions.	Fully implement improvement opportunities.
	D7	Preventive actions.	Establish mechanism to continuously discover and utilize opportunities.
	D8	Review results.	Evaluate and share improvement results.

Source: prepared by the researcher based on the results

5. Conclusions and Recommendations

5.1 Conclusions

The conclusions are as follows:

1. The Planning clause showed good performance with 81% implementation rate and 19 percent gap which means that the procedures are good in terms of risk management and attainment of institutional goals but planning of changes needs to be improved.
2. The Performance Evaluation clause had an 81% implementation rate with a gap of 19, which is a good monitoring and measurement system, whereas management review processes require improvement.
3. The Improvement clause had an 80% implementation rate and 20% gap which indicated positive trends on continuous improvement and corrective actions and there are opportunities to utilize improvement initiatives better.
4. The Operation clause had an implementation rate of 72% with a gap of 28% which shows that the management of educational products and services is done satisfactorily, but the monitoring of the external processes needs to be improved greatly.
5. Organizational Context clause demonstrated 68% implementation rate and 32% gap, which is good awareness of organizational environment, but requires more definite scope of management system.
6. The second-highest gap was the Leadership clause with 42% (58% implementation) which implies that there are serious weaknesses in the allocation of organizational roles, responsibilities, and authorities even with strong commitment of leadership.
7. The Support clause had the most significant gap of 44% (56% implementation), which indicated that there are severe gaps in institutional awareness and the internal communication channels, and the training and coordination mechanisms need to be urgently addressed.
8. The 8D methodology was quite helpful as a structured approach to discovering root causes, examining gaps, and finding viable solutions to attain continuous improvement and increase adherence to ISO 21001:2018 requirements.

5.2 Recommendations

The recommendations are as follows:

1. Enhance change planning strategies through dynamic plans to future opportunities and risks.
2. Organize institutional training programs to improve the skills of the allocation of roles and responsibilities.
3. Invest more in training and awareness to improve employee awareness of institutional goals, as well as the internal communication channels.
4. Develop a guide manual to explain the scope of management system that includes all the activities and services of the institution.
5. Establish regular appraisal systems and improve internal audit systems to facilitate successful attainment of institutional goals.
6. Pay attention to the enhancement of the external process monitoring and educational products to guarantee the compliance with the quality standards.
7. Develop a sustainable process of identifying and realizing the opportunities of improvement in a systematic manner to achieve the long-term goals.
8. Implement the 8D methodology of problem analysis, solution design, and post-implementation follow-up permanently, which will help in the ongoing improvement.

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