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History and the Challenges of the Quality Management System: A Case Study

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Abstract *— This research delved into the history of the University of Cebu – Lapulapu Mandaue Quality Management System (QMS), its implementation, the challenges faced, and the lesson learned. The QMS is necessary as compliance to regulatory requirement specifically for the Maritime Education Programs and as well as a management standard guide for everyone to attain the desired outputs of the University's strategic direction and maintain customer satisfaction. The investigation utilized the case study method to analyze and discuss the results and impacts, challenges faced, and lesson learned of the implementation of the QMS. The researchers conducted the study through the utilization of different sources like related literatures and studies, and actual observation of internal practices and trends. The study revealed that the implementation of the QMS is consistent to the required standard; however it still faced several minor challenges in the areas of documented information and keeping of records, monitoring and measurement, analysis and evaluation, knowledge of operational processes, compliance to corrections and corrective actions, and maintaining customer satisfaction. The findings led to the conclusion that in order to minimize the challenges; the implementation of the QMS shall be strengthened through continuous coordination of the Institutional Quality Assurance office with all the other offices and to regularly refresh the personnel's knowledge of the application of the standards and compliance to the requirements.*

Keywords *— **compliance, quality management system, regulatory, standards.***

I. INTRODUCTION

The quality management system (QMS) integrates the various internal processes within the organization and intends to provide a process approach for project execution. A process based QMS enables the organization to identify, measure, control, and improve various core business processes that will ultimately lead to improved business performance (The 9000 Store, 2024).

The system defines how a company will achieve the creation and delivery of the products and services they provide to their customers. When implemented, the QMS needs to be specific for the product or service the company provides, so it is important to tailor it to your needs. However, in order to help ensure that you do not miss elements of a good system, some general guidelines exist in the form of ISO 9001:2015 (Quality Management System – Requirements) by ISO 9001International Standard, which are intended to help standardize how a QMS is designed (Hammar, 2024).

A QMS enables businesses in highly regulated industries to consistently apply quality

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processes to produce products that meet regulatory requirements. QMS frameworks such as ISO 9001:2015 provide a comprehensive blueprint for customer-focused quality management based on principles of leadership, the workforce, improvement, evidence-based decisions, and relationships (Qualio, 2024).

Brief History of UCLM QMS

University of Cebu—Lapulapu and Mandaue is a private, non-sectarian higher educational institution founded in May 1995. The campus started operating with only 24 instructors, 755 enrollees, and 7 Associate Programs offered. By 1997, the accelerated growth of the University's students paved the way for the transition of the Associate Programs to Baccalaureate degrees under the ladderized curricula. At present, the University already offers 1 Master's Degree Program, 20 Baccalaureate Degree Programs, and complete Basic Education.

The Quality Management System (QMS) was introduced and implemented in the University way back in 2008 when the Norwegian Shipping Association (NSA) Cadetship Project Philippines transferred its operation from UC Maritime Education and Training Center (UC METC) to UCLM. Prior to the transfer, the Maritime Education Programs at UCLM were only an extension of the UC METC campus. With the transfer, UCLM was obligated to apply for a Government Permit (GP) to operate the BS in Marine Transportation and BS in Marine Engineering Programs, not as an extension but as part of the regular educational programs offering. One of the requirements for the permit to be approved is the establishment of a certified quality management system geared towards compliance with the provisions under the Standards of Training, Certification, and Watchkeeping, 1978, as amended Regulation 1/8.

The external benchmarking for the quality management certification of the BSMT and BSMARE Programs was performed by Det Norske Veritas PTE (DNV). The annual verification started in February 2009 and continued annually until February 2012, with the following areas (below) being evaluated for compliance with the established DNV Standard for Certification No. 3.201 (Learning Programmes), International Maritime Organization (IMO) Model Courses 7.03 and 7.04), and Commission on Higher Education (CHED) CMO No. 13, Series 2005 - Policies, Standards, and Guidelines for Maritime Education. The areas are:

1. Course syllabus and timetable;
2. Instructor's guide;
3. Instructional materials;
4. Facilities and equipment;
5. Assessment methods and assessment materials; and
6. Training and lecturing methodology

After passing the benchmarking, DNV issued the Management System Certificate to UCLM Maritime Academy on February 15, 2013, under the requirements of the DNV Standard for Certification of Maritime Academies. UCLM then applied for the next certification, ISO 9001:2008, which is intended for the Business Assurance Management System Certificate. After 8 months of conforming to the standards and complying with the requirements, UCLM was issued the certificate for ISO 9001:2008 on October 11, 2013, which has validity until 2016.

Upon the expiry of the ISO 9001:2008 certificate, UCLM transitioned to the latest management certificate, which is the ISO 9001:2015 entitled Quality Management System, which has the scope of Provision of Maritime Education. After the review and validation of all the requirements, DNV-GL issued the certificate on October 11, 2016, and it is valid until October 2019. When the certificate expired, UCLM decided to transfer to another certifying agency, Bureau Veritas (BV).

The latest ISO 9001:2015 quality management system covers the following management areas (below) that shall undergo an annual surveillance audit for 3 years before it will be renewed. The areas that need to conform to standards and comply with requirements are:

1. The scope of the Maritime Education programs and the support offices;
2. The normative references used;
3. The specific terminologies and their definitions;

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4. The context of the Maritime Education programs and the support offices relevant to their interested parties and the quality management system;
5. The role of leadership and commitment;
6. Quality objectives and planning, and the actions to address risks and opportunities;
7. The provision of human, infrastructure, and material resources;
8. Operational processes and their control mechanisms;
9. Performance evaluation through monitoring, measurement, analysis, and evaluation; and
10. Continual improvement of the system and its processes.

II. OBJECTIVES OF THE STUDY

This case study sought to determine the history and the evolution of the Quality Management System of the University of Cebu – Lapu-Lapu Mandaue. Specifically, the study aimed to answer the following questions:

1. What is the history of the Quality Management office of the University of Cebu-Lapulapu Mandaue in terms of:
   - 1.1 Establishment of the office;
   - 1.2 Location of the office; and
   - 1.3 Quality Management Representatives/Managers
2. What are the key challenges faced by the University of Cebu – Lapulapu Mandaue before the Quality Management System in area of:
   - 2.1 Documented information and keeping of records;
   - 2.2 Monitoring, measurement, analysis, and evaluation of the intended outputs;
   - 2.3 Personnel knowledge of the operational processes;
   - 2.4 Compliance with corrections and corrective actions;
   - 2.5 Maintaining customer satisfaction.
3. Is there a need for the implementation of the quality management system in the aspect of:
   - 3.1 Regulatory requirements;
   - 3.2 Market competition;
   - 3.3 Cost reduction;
   - 3.4 Increase in productivity; and
   - 3.5 Continual improvement

III. IMPLEMENTATION OF THE QUALITY MANAGEMENT SYSTEM

Steps adopted for the implementation

UCLM's implementation of the ISO 901:2015 quality management system adopted explicitly the following steps to conform to international standards to wit:

1. Established a quality manual to demonstrate its ability to consistently provide products and services that meet customer and applicable statutory and regulatory requirements.
2. Enhanced customer satisfaction through the effective application of the system, including processes for improvement of the system and the assurance of conformity to customer and applicable statutory and regulatory requirements.
3. Determined normative references as the basis for conformance to standards and compliance with requirements.
4. Established the terminologies for the specific use in the quality management system.
5. Determined the external and internal issues that are relevant to its purpose and its strategic direction that affect its ability to achieve the intended result(s).
6. The top management demonstrated leadership and commitment by taking accountability for the effectiveness of the QMS and ensuring that the quality policies and quality objectives are established and compatible with the context and strategic direction of UCLM.
7. Established quality objectives, planned at relevant functions, levels, and processes, and took actions to address risks and opportunities.
8. Determined and provide the resources needed for the establishment, implementation, maintenance, and continual improvement of the quality management system.
9. Determined the knowledge necessary for the operation of its processes and to achieve conformity of its products and services.

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10. Determined the competence of personnel that affects the performance and effectiveness of its operational processes.
11. Formulated, disseminated, and controlled documented information that is necessary for the effectiveness of the quality management system.
12. Planned, implemented, and controlled the processes needed to meet the requirements for the provision of products and services, and implemented the actions for the risks and opportunities management.
13. Performed monitoring, measurement, analysis, and evaluation of the processes implemented for the conformance of reference standards and compliance with statutory and regulatory standards.
14. Endeavoured to continually improve the suitability, adequacy, and effectiveness of its quality management system.

The key methodology used in implementing the quality management system is based on Edward Deming's plan, do, check, act (PDCA) quality management cycle.

The role of the Top Management in the implementation of the QMS is anchored on their demonstration of leadership and commitment with respect to:

1. Taking accountability for the effectiveness of the QMS;
2. Ensuring that the quality policy and quality objectives are established for the QMS and are compatible with the context and strategic direction of UCLM;
3. Ensuring the integration of the QMS requirements into the organization's business processes;
4. Promoting the use of the process approach and risk-based thinking;
5. Ensuring that the resources needed are available;
6. Communicating the importance of effective quality management and conforming to the quality management system requirements;
7. Ensuring that the quality management system achieves its intended results;
8. Engaging, directing, and supporting personnel to contribute to the effectiveness of the quality management system;
9. Promoting continual improvement and
10. Supporting other relevant management roles to demonstrate their leadership as it applies to their areas of responsibility.

To ensure that the roles of the employees are clearly defined and in accordance with the standards and requirements of the quality management system, UCLM guarantees that the persons doing work under its operation are aware of the following:

1. The established quality policies;
2. Relevant quality objectives
3. Their contribution to the effectiveness of the quality management system, including the benefits of improved performance and
4. The implications of not conforming to the quality management system requirements.

IV. RESULTS AND IMPACT

Some of the results of the key challenges and the need for the implementation of the quality management system were taken from the unpublished research by Rey Carlito Aranzado (2024) entitled "The University of Cebu Maritime Education Programs Quality Management System: Its Compliance to CHED-MARINA Requirements." This research has concerns similar to those of this study; thus, some of its findings can be used as a reference. The rest of the results, like market competition, cost reduction, and increase in productivity, are based on the actual experience of UCLM in these areas, as observed by the researchers.

Establishment of the Quality Management Office

Based on records, the Quality Management Office was established last 2008 when the Norwegian Shipping Association Cadetship Project (NSA) decided to transfer its operation from UC Maritime Education and Training Center campus to University of Cebu-Lapulapu Mandaue campus. The office was created to manage the planning, implementation, monitoring and measurement, and analysis and evaluation of all the quality assurance standards and requirements based on regulatory body and certification agencies for the Maritime Education Programs. The office was also tasked to facilitate the

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registration and coding of all controlled documents, the conduct of a regular internal audit processes, the submission of compliance to external audit findings, and the annual Management Review.

Location of the Quality Management Office

In 2008, the Quality Assurance office was located near gate 2 of the old UCLM building. By the middle of 2015, the office was temporarily transferred to the President's office and it occupied the office of the Chancellor while waiting for the construction of its present location. Currently, the Quality Assurance office, which was changed to Institutional Quality Assurance (IQA) office, is now located at the ground floor of the Maritime Education building near the President's office. This location was chosen because it is suitable for the office's functions.

Quality Management Representatives/Quality Assurance Manager

The first UCLM employee who was designated as the Quality Management Representative (QMR) that was tasked to handle the Quality Assurance processes was Ms. Daryl F. Legarde. Because she was also the Property Custodian, Ms. Legarde only stayed in the position until the end of 2008. From 2008 to the end of 2012, Dr. Ily E. Abella took the helm of managing the operation. Mr. Abella decided to quit thus the management searched for a replacement. By February 2013, Mr. Rey Q. Aranzado was appointed by the Chancellor as the new Quality Management Representative. In late 2014, Mr. Aranzado requested temporary transfer to another office thus he was replaced by Ms. Ida A. Bentulan. From 2014 until middle of 2015, Ms. Bentulan handled the duties and responsibilities of the QMR. By the middle of 2015, UCLM management reinstated Mr. Aranzado as the QMR along with Mr. Joremi Milan and Ms. Jas Orica as his team. It was also during this time that the name Institutional Quality Assurance office was established. In 2017, Ms. Orica resigned and followed by Mr. Milan in 2018. Thus from 2015 until the present, Mr. Aranzado continues to head the Institutional Quality Assurance office. The position QMR was also changed into Quality Assurance Manager.

Challenges for Documented Information and Keeping of Records

The table below indicates the key challenges for documented information as required by the quality management system in relation to regulatory requirements.

Table 1: Extent of the Efficiency of the Quality Management System of the Maritime Education Programs in the Compliance of the CHED- MARINA Requirements in Terms of Documented Information

	Indicators	Mean	Description
1.	Create and update the identification and description (title, date, author, reference number) and format (language, software version, graphics) of the documented information regularly to ensure suitability.	3.66	Highly Efficient
2.	Ensure that the documented information is available when and where it is needed.	3.65	Highly Efficient
3.	Ensure that control of documented information addresses distribution, access, retrieval and use, storage and prevention, control of changes, and retention and disposal.	3.69	Highly Efficient
4.	Identify and keep documented information of external origin necessary for the planning and operation.	3.64	Highly Efficient
5.	Ensure that documented information retained as evidence of conformity shall be protected from unintended alterations.	3.66	Highly Efficient
	Overall Mean:	**3.66**	**Highly Efficient**

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Table 1 divulges that the implementation of the UC maritime education program's quality management system as a tool for compliance with the CHED-MARINA requirement in terms of documented information is considered by the respondents to be highly efficient, with an overall mean of 3.66. This result can be interpreted as UC maritime education efficiently using the guidelines of the quality management system in their operation's documented information.

ISO 9001:2015 clause 7.5.1 states that the organization's quality management system shall include: a) documented information required by the standard, b) documented information determined by the organization as being necessary for the effectiveness of the quality management system.

Documented information serves several key functions within ISO 9001:2015. It acts as a carrier of knowledge, a means to communicate intent, and a record of evidence that quality processes have been followed and objectives met. Essentially, it is the backbone that supports the structure and operation of a QMS, ensuring consistency and traceability. The importance of documented information in a QMS cannot be overstated. It provides a tangible way to capture organizational knowledge, define processes, and set quality objectives. Without it, maintaining consistency and achieving continual improvement would be challenging, if not impossible (isms.online, 2024).

For documented information, the performance indicator ensures that control of documented information shall address distribution, access, retrieval and use, storage and prevention, control of changes, and retention and disposal. This indicator obtained the highest mean of 3.69. This finding implies that UC maritime education systematically ensures that the use and control of their documented information regularly adhere to the quality management system standards and requirements.

Documented information serves as evidence of compliance with ISO standards. It allows external auditors to verify that the organization is following established procedures and maintaining necessary documentation. To leverage the benefits of documented information, it is important to ensure accuracy, accessibility, and relevance. Regular reviews should be done to update outdated documents or remove irrelevant ones. This enables an up-to-date knowledge base that supports informed decision-making (Onpolicy, n.d.).

The performance indicator that got the lowest mean of 3.64 is identifying and keeping documented information of external origin necessary for the planning and operation. This result can be interpreted that there may be some efficiency issues experienced by the respondents in relation to identifying and keeping documented information of external origins for planning and operation. For continual improvement, UC maritime education should initiate action to strictly adhere to the requirement of ISO 9001:2015 clause 7.5.3.2, which states that documented information of external origin determined by the organization to be necessary for the planning and operation of the quality management system shall be identified as appropriate, and be controlled.

Challenges for monitoring, measurement, analysis, and evaluation of the intended outputs

The table below indicates the key challenges for monitoring, measurement, analysis, and evaluation as required by the quality management system in relation to regulatory requirements.

Table 2: Extent of the Quality Management System of the Maritime Education Programs as Practiced in Compliance with the CHED-MARINA Requirements in the Area of Operation as to Monitoring and Measurement

	Indicators	Mean	Description
1.	Determine what needs to be monitored and measured.	3.76	Great Extent
2.	Control the methods for monitoring, measurement, analysis, and evaluation needed to ensure valid results.	3.60	Great Extent
3.	Ascertain the frequency of the monitoring and measurement.	3.64	Great Extent

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4.	Establish schedules when the results of the monitoring and measurement are analyzed and evaluated.	3.60	Great Extent
5.	Appropriately retain documented information.	3.64	Great Extent
	Overall Mean:	**3.65**	**Great Extent**

Table 2 reveals that the extent to which the quality management system is manifested, leading towards compliance in the area of operation as to monitoring and measurement, is perceived by the respondents as practiced to a great extent, as specified by the overall mean of 3.65. This outcome indicates that UC maritime education diligently monitors and measures all processes of its operation for continual improvement. Anna Turri (2023) suggested that the notion of continuous improvement implicitly includes the one of measuring and monitoring; in other words, there is no continuous improvement where there is no measuring and monitoring.

Moreover, Kellen (2003) theorized that business performance measurement and control systems are the formal information-based routines and procedures that managers use to maintain or alter patterns in organizational activities. Kellen notes that a typical performance measurement can help businesses set business goals regularly and subsequently provide managers with feedback on the progress toward meeting those goals.

The highest-rated performance indicator for the area monitoring and measurement, with a mean of 3.76, is determining what needs to be monitored and measured. This finding implies that UC maritime education regularly practices identifying what areas of their operation need monitoring and measurement. As a regulated and certified educational institution, there are numerous areas to be monitored and measured, such as personnel qualifications, carrying capacity of students, facilities and equipment, etc. Anna Turri (2023) posits that it is important for an organization to clearly define its key processes, identify which aspects of these processes require measurement, establish the methods and frequency of measurement, and determine when to analyze and evaluate the outcomes of these measurements.

In addition, Ghalayini and Noble (1996) noted that performance measures are used by companies to evaluate, control, and improve production processes to ensure that they achieve their goals and objectives.

The performance indicators control the methods for monitoring and measurement, analysis, and evaluation needed to ensure valid results and establish schedules for when the results of the monitoring and measurement are analyzed and evaluated, which got the lowest mean of 3.60. These results may be attributed to some issues and concerns regarding how the control of the methods is implemented and the lack of regular discussion related to the results of monitoring and measurement.

The ISO 9001:2015 International Standards recommend that organizations analyze and evaluate appropriate data and information arising monitoring and measurement. The results of the analysis shall be used to evaluate: a) conformity of products and services to requirements; b) the degree of customer satisfaction; c) the performance and the effectiveness of the quality management system; d) if planning had been implemented effectively; e) the effectiveness of the actions taken to address risks and opportunities; f) the performance of the external providers; and g) the need for improvement. Thus, it is important that UC maritime education management implement action to improve these monitoring and measurement indicators.

Table 3: Extent of the Quality Management System of the Maritime Education Programs as Practiced in Compliance with the CHED-MARINA Requirements in the Area of Operation as to Evaluation

	Indicators	Mean	Description
1.	Analyze the degree of customer satisfaction.	3.70	Great Extent
2.	Determine if planning has been implemented effectively.	3.61	Great Extent

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3.	Find out the effectiveness of the actions taken to address risks and opportunities.	3.63	Great Extent
4.	Assess the performance of the external providers.	3.61	Great Extent
5.	Appraise the areas that need improvement.	3.64	Great Extent
	Overall Mean:	**3.64**	**Great Extent**

Table 3 shows that the extent to which the quality management system is manifested, leading towards compliance in the area of operation as to monitoring, is perceived by the respondents as practiced to a great extent, as specified by the overall mean of 3.64. This finding signifies that UC maritime education regularly performs an evaluation of the results of the monitoring and measurement of the areas they have identified as critical for compliance with CHED-MARINA requirements.

The evaluation of the performance of an enterprise can also be understood as a constituent part of management, which helps to make managerial decisions. Enterprises that carry out integrated evaluation of performance work more effectively than those that do not evaluate their performance. Performance evaluation helps to implement the strategy, follow the development of an enterprise, integrate short-term and long-term goals and opportunities of an enterprise, and evaluate an organization as a single entity (Ruževičius et al., 2004; Gitlow et al., 2005; Kaziliūnas, 2006).

The evaluation of processes does not require large costs or reductions in quality. It is important to have sufficient knowledge and experience, as well as technical potential when implementing changes in an organization to profit from the experiences and good practices of successful enterprises. The improvement of performance does not have to be limited to the implementation of means of improvement of processes and application of methods; it is important to observe the influence of changes on the effectiveness of processes and take appropriate actions of adjustment if necessary (Gitlow et al., 2005).

The performance indicator for the area of evaluation that obtained the highest mean of 3.70 is analyzing the degree of customer satisfaction. This outcome indicates that UC maritime education clearly understood that customer plays a crucial role in the success of their operation and the business. If the result of customer satisfaction is poor or the cause is not evaluated, then it will become detrimental to their operation. This practice is in line with the total quality management framework. Peter Landau (2022) described it as a management approach that focuses on delivering products and services with the highest quality to maximize customer satisfaction and meet regulatory standards.

Moreover, ISO 9001:2015 requires that the organization monitor customers' perceptions of the degree to which their needs and expectations have been fulfilled. The organization shall determine the methods for obtaining and retrieving this information. The organization shall also analyze and evaluate appropriate data and information arising from the monitoring and measurement.

On the other hand, the performance indicator that got the lowest mean of 3.61 is to determine if planning has been implemented effectively and assess the performance of the external providers. For planning, the result can be linked to the lack of regular monitoring of the actual implementation of the plan. Measurement will only be done through the accomplishment report. In ISO 9001 certification, planning is the first phase in formulating the steps of ISO 9001 implementation. Among the essential things to do is identify aspects of quality for the improvement of the quality of work (Bakhtiar, 2012). These aspects include clarity about the sequence and the provision of duties, the implementation of documentation with the recording of data and recording of employment activities as evidence of the implementation of ISO 9001 within the organization, and the establishment of standard procedures for organizing work activities undertaken by members of the organization (Feng et al., 2008).

For assessing the performance of external providers, the result may be associated with the fact

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that not all offices of UC maritime education have direct interaction with the external providers. Thus, they have not experienced assessing their performance.

Challenges for knowledge of operational processes

The table below indicates the key challenges for the operational process as required by the quality management system in relation to regulatory requirements.

Table 4: Extent of the Quality Management System of the Maritime Education Programs as Practiced in Compliance with the CHED-MARINA Requirements in the Area of Organizational Structure as to Roles, Responsibilities, and Authorities

Indicators	Mean	Description
1. Ensure that the quality management system is utilized as a tool for conformance to the CHED-MARINA requirements.	3.75	Great Extent
2. Ensure that the established processes are delivering their intended outputs.	3.60	Great Extent
3. Regularly report the performance of the quality management system for improvement to top management.	3.58	Great Extent
4. Ensure the promotion of customer focus throughout Maritime Education.	3.69	Great Extent
5. Ensure the integrity of the quality management system is maintained when changes are planned and implemented.	3.73	Great Extent
Overall Mean:	**3.67**	**Great Extent**

Table 4 reveals that the extent to which the quality management system is manifested, leading towards compliance in the area of organizational structure as to roles, responsibilities, and authorities, is perceived by the respondents as practiced to a great extent, as specified by the overall mean of 3.73. The result can be interpreted as clear proof that roles, responsibilities, and authorities in UC maritime education are continuously applied when implementing the quality management system. This judgment is aligned with the theory of Henri Fayol advocated by MBA Note (2024), which states that managers analyze the future, make forecasts, and develop strategies to steer the organization in the desired direction; divide tasks, delegate responsibilities, and create a structured framework for smooth operation; foster a positive work environment and motivate employees to work towards shared goals; synchronize activities, align efforts, and promote collaboration to avoid conflicts and improve productivity; monitor performance against established standards and taking corrective actions when necessary; and assess outcomes, compare them to plans, and make adjustment to ensure progress.

The highest-rated performance indicator that amassed a weighted mean of 3.75 is ensuring that the quality management system is utilized as a tool for conformance to the CHED-MARINA requirements. This result can be related to UC maritime education's academic and support office heads full awareness of the importance of the quality management system as an instrument to ensure that CHED-MARINA requirements will be complied with. As stated by Qualio (2024), A QMS enables businesses in highly regulated industries to consistently apply processes to produce products that meet regulatory requirements. QMS frameworks such as ISO 9001:2015 provide a comprehensive blueprint for customer-focused quality management based on principles for leadership, the workforce, processes, improvement, evidence-based decisions, and relationships.

The performance indicator that got the lowest mean of 3.58 is regularly reporting the performance of the quality management system for improvement to top management. Even though the

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meaning of this finding is still interpreted as practiced to a great extent, it is still important that UC maritime education management take action for improvement. The perception of the respondents signifies that the performance of the quality management system is seldom reported to top management. The top management in this context is the UC Vice Chancellors and the Executive Vice Chancellor. Although the quality assurance office does regular reporting, as experienced by the personnel involved in the implementation of the quality management system, they only interact with the top management about quality management during the conduct of the management review. This practice may affect the perception of the respondents. Deming (1982) stated that there are obligations expected of top management, for it is clearly top management's responsibility to create and communicate a vision for quality management. There are principles of transformation to be embraced by top management in its effort to change and enhance an organization's ability to survive continually.

Challenges for compliance to corrections and corrective actions

The table below indicates the key challenges for the corrections and corrective actions as required by the quality management system in relation to regulatory requirements.

Table 5: Extent of the Efficiency of the Quality Management System of the Maritime Education Programs in the Compliance of the CHED- MARINA Requirements in Terms of Correction and Corrective Action

	Indicators	Mean	Description
1.	React to the nonconformity, take action to control and correct it, and deal with the consequence, as applicable.	3.76	Highly Efficient
2.	Evaluate the need for action to eliminate the cause(s) of the nonconformity so that it does not recur or occur.	3.71	Highly Efficient
3.	Implement any action needed and review the effectiveness of any corrective action taken.	3.76	Highly Efficient
4.	Update the risks determined during planning to prevent further nonconformity.	3.64	Highly Efficient
5.	Retain documented information on the nature of the nonconformity and any subsequent actions taken.	3.69	Highly Efficient
	Overall Mean:	**3.71**	**Highly Efficient**

Table 5 discloses that the implementation of the UC maritime education program's quality management system as a tool for compliance with CHED-MARINA requirements in terms of correction and corrective action is considered by the respondents as highly efficient, with an overall mean of 3.71. This finding is a sign that UC Maritime Education definitely performs efficient correction and corrective actions to all internal and external nonconformities caused by inspection, evaluation, or audit. Since correction and corrective actions are integral parts of compliance, it is expected that maritime education will efficiently and effectively implement these actions in accordance with their established quality management system.

ISO Tracker (2023) suggested that the primary goal of quality management within the workplace is to strive for continual improvement. As such, both corrective and preventive actions play an important role in providing employees, management, and even stakeholders with improved systems. By correcting non-compliance, employees can improve any potential skills shortages or motivational issues that may have been in place, thereby preventing further issues down the road.

This, therefore, gives management the freedom and responsibility to assess the degree of the risk posed by the possibility that the non-conformance under review may repeat in the future. So therefore, if the risk and its effect are minimal or negligible, then it will be quite appropriate not to

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take any corrective action at all. It will be quite appropriate to depend on the same mechanisms designed to detect non-conformance to detect it again when it happens and take actions of *correction* to correct the nonconformities (QIA, 2024).

For correction and corrective action, the performance indicators that got the highest mean of 3.76 are: react to the nonconformity and, as applicable, take action to control and correct it, deal with the consequence, and implement any action needed, review the effectiveness of any corrective action taken. This outcome is expected because, as a regulated and certified maritime education institution, it is imperative that the personnel immediately react to the nonconformity and take action to control and correct it and then conduct a review for the effectiveness of the output of the action taken. This practice is in line with the requirement of ISO 9001:2015 clause 10.2.1, which states that when a nonconformity occurs, including any arising from complaints, the organization shall a) react to the nonconformity, b) evaluate the need for action to eliminate the cause(s) of the nonconformity, in order that it does not recur or occur elsewhere, c) implement any action needed, d) review the effectiveness of any corrective action taken, e) update risks and opportunities determined during planning, if necessary, and f) make changes to the quality management system, if necessary.

On the contrary, the performance indicator, updating the risks determined during planning to prevent further nonconformity, obtained the lowest mean of 3.64. This outcome can be interpreted as UC maritime education personnel experiencing an issue with updating determined risks after nonconformity has been issued from evaluation, inspection, or audit. Therefore, it is paramount that management take action to continuously improve this performance indicator.

As suggested by Quantum Internet Alliance (2024), the important fact is that proper corrective actions require deliberate and involved actions to research causes (root cause, contributing cause, and direct cause) and redesign, as well as improve underlying processes. This involves expenditures beyond and in addition to just correcting the nonconforming product and should be invoked only when the assessed value of the risk is greater than the cost of implementing a corrective action. This is good business and is fully supported by the standard.

Challenges for maintaining customer satisfaction

Based on the annual conduct of all academic and support offices' customer satisfaction surveys, the results are that most of the customers are satisfied with how the services of each office were implemented. This observation is supported by the continuous growth of the enrolment population of the BSMT and BSMARE Programs, as well as the increase in the linkage for the students' onboard training shipping companies. However, in conformance and compliance with the ISO 9001:2015 QMS standards and requirements, there is still a need to be consistent with the formulation and implementation of the plan of action for the weakest areas of customer satisfaction.

According to GoCardless (n.d.), customer satisfaction is important because it hugely increases the chances of a customer returning to do more business. Customer loyalty will not come easy if you are not focused on pleasing your base.

But the importance of customer satisfaction stretches beyond retention; it's also about improving more generally as a business. Understanding how your customers feel about their interactions with your brand is the best way to identify weaknesses and areas for improvement. Your customers' feedback is extremely valuable, and if satisfaction levels are low, you know you need to take action.

Monitoring satisfaction by engaging with your customers and gathering genuine, specific feedback will help you determine exactly what you can do to turn things around.

Conversely, positive customer satisfaction helps you identify your strengths, which you can then use to facilitate further growth.

The need for the implementation of a quality management system

The researchers' results on the need to implement the quality management system are based on direct observation and a review of related literature and studies.

OMS and Market Competition

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With the growing competition from other maritime higher educational institutions within region 7, UCLM really needs to implement a quality management system for its maritime education programs as a guarantee to its customers as well as its stakeholders that the academic and support programs offered are at par with international standards. Thus, maintaining its dominance in the maritime education programs.

According to Qualio (2024), a QMS can simplify the process of quickly scaling to enter new markets, territories, and sectors by allowing you to more easily meet new compliance requirements and accommodate new global stakeholders.

This can allow organizations to move with agility in a competitive landscape and focus on innovation and building business relationships instead of creating compliant systems from the ground up.

QMS and Cost Reduction

Qualio (2024) opined that "the cost of poor quality, including rework and recalls, can range from 15 to 35 percent of total business costs in many regulated industries. Externally discovered product failures which are found by customers or regulatory bodies are generally 5 to 10 times more expensive than mistakes discovered earlier in the process".

A QMS reduces rework by enabling earlier discovery of potential quality issues. Digitized work instructions allow organizations to streamline certification and calibrate tools, allowing more opportunities to discover quality issues before they result in costly rework.

The statements above are very much applicable to maritime education programs, where there are so many requirements that need quality processes to ensure no repetitive mistakes. Implementing QMS on the processes of these requirements will eliminate costly errors, thus allowing cost reductions in the long term.

QMS and Increase in Production

A well-implemented Quality Management System (QMS) can indirectly contribute to increased production by improving efficiency, reducing waste, and ensuring consistent quality, ultimately leading to higher output and reduced costs.

In today's competitive landscape, implementing a robust Quality Management System is essential for organizations looking to stay ahead of the curve and deliver exceptional products or services consistently. Organizational productivity is a key factor that determines the success and sustainability of any business (Oommen, A. V., et al., 2024).

The above perspectives justify the need for UCLM maritime education to implement a quality management system for its annual operation.

QMS and Continual Improvement

Continual improvement is one of the most important principles in any quality management strategy. It sets a core goal for all improvement practices within the organization. As the International Organization for Standardization (ISO) says, "continual improvement should be a permanent objective of the organization." There are many benefits to continual improvement, including a performance advantage that comes from improved organizational proficiencies. It also aligns your improvement strategies with your strategic goals and ensures the flexibility to react promptly to opportunities that may arise (ISOTracker, 2025). Therefore, to continually improve the performance of UCLM maritime education, a quality management system must be implemented in its operational processes.

V. CHALLENGES FACED

Implementing a Quality Management System (QMS) is often seen as a crucial step for organizations aiming to enhance product quality, improve customer satisfaction, and streamline operations. While the benefits of a well-implemented QMS are clear, the journey towards achieving these outcomes can be complex and fraught with challenges. Here are some of the challenges faced by the University of Cebu with the implementation of the Quality Management System.

1. Challenges in Personnel Changes

Changing personnel can create several challenges for a Quality Management System (QMS). These challenges affect consistency, communication,

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and the overall effectiveness of the system. When employees leave, they take with them valuable knowledge of quality procedures, best practices, and system nuances. New hires might not fully understand the organization's quality culture or the specifics of the processes. The loss of institutional knowledge is one of the biggest problems brought on by staff turnover and employee turnover is a serious problem for many organizations around the world (Al-Suraihi, 2021). The departure of seasoned employees impacts productivity across the organization, especially when vacancies cannot be filled as quickly as you would like (Lancaster, 2024).

To address this challenge, organizations should implement targeted solutions. One effective strategy is to create a comprehensive knowledge management system that captures essential information from employees before they leave. To remain at the forefront organizations, need a good capacity to retain, develop, organize and utilize their employees' capabilities (Davenport et al., 1998). This might involve documentation of procedures, best practices, and lessons learned, ensuring that critical knowledge is retained within the organization. Today, organizations are realizing that Knowledge Management (KM) is a valuable asset that can be managed as effectively as physical assets in order to improve performance (Kumar, 2015).

Additionally, mentorship programs can be established where experienced employees guide newcomers, helping them acclimate to the organization's quality culture and processes more effectively. Regular training sessions and workshops can further reinforce the understanding of the QMS among all employees, fostering a culture of continuous improvement.

2. Challenges for Documented Information and Keeping of Records

One key requirement of ISO 9001 is to maintain robust documentation for all processes and ensure proper record-keeping. Research has shown that one of the most significant challenges, reflected in a mean score of 3.64, is the identification and retention of documented information of external origin necessary for planning and operation. This challenge is not unique to one institution; it is prevalent across various universities.

A study conducted by Jørgensen and Koch (2013) titled "Quality Management in Higher Education: Challenges and Benefits of Implementing ISO 9001" highlights that the implementation of ISO 9001 in academic institutions often uncovers significant issues related to the documentation of processes and records. Universities frequently struggle to ensure that external documents—such as accreditation standards, agreements with external partners, and regulatory requirements—are accurately identified, categorized, and retained.

Elgobbi's (2014) case study, "Implementing the Requirement of Quality Management System According to ISO 9001:2008 in Higher Education Institutions: A Case Study for Sirte University in Libya," highlights the crucial role of maintaining quality records. These records must be properly created and retained to prove adherence to QMS standards and the efficient functioning of the system. Furthermore, the records should be legally compliant, clear, specific, and easily accessible when required.

Several strategies can be implemented to effectively address the challenges associated with documentation and record-keeping in compliance with ISO 9001. One effective approach is the adoption of an integrated digital document management system. Such systems facilitate the easy categorization, storage, and updating of both external and internal documents, thereby enhancing the tracking and retrieval processes necessary for compliance. Research has shown that digital document management can significantly improve efficiency and accuracy in handling documentation. A study conducted by Abdallah Adjilla et al. (2024) titled "The Role of Digital Document Management and Preservation in Improving Service Quality" concluded that digitization and automation have a positive and tangible effect on various aspects of service quality, with data accuracy identified as a crucial influencing factor. While the speed of access to digital data did not show a significant overall impact on service quality, the research underscores the importance of leveraging digital technology to enhance customer experience and deliver more effective and efficient services. This emphasizes the value of accurate and well-managed digital

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documentation in improving overall service delivery and operational performance.

In addition to technological solutions, universities should prioritize regular training for staff involved in document management. This training should emphasize the importance of accurate record-keeping and the specific requirements outlined in ISO 9001. Studies indicate that ongoing education and training can lead to improved compliance and a better understanding of quality management principles among staff (Roque, J. P. & Ulanday-Lozano, D. (2024).

Lastly, establishing periodic audits and reviews of documentation is crucial for identifying gaps or inconsistencies in record-keeping practices. Internal audit (IA) functions play a crucial role in assisting organizations to achieve their objectives and safeguard their assets (Alqudah et al., 2019). Such audits can help institutions proactively address issues before they escalate into more significant challenges. Research supports the notion that regular audits contribute to continuous improvement in quality management systems (Abdelrahim, A., & Al-Malkawi, H.-A. N. (2022).

3. Challenges for monitoring, measurement, analysis, and evaluation of the intended outputs

The key challenges for monitoring, measurement, analysis, and evaluation as required by the quality management system in relation to regulatory requirements. Extent of the Quality Management System of the Maritime Education Programs as Practiced in Compliance with the CHED-MARINA Requirements in the Area of Operation as to Monitoring and Measurement. Table 2 shows that Controlling the methods for monitoring and measurement, analysis, and evaluation needed to ensure valid results and Establishing schedules when the results of the monitoring and measurement are analyzed and evaluated obtained the lowest weighted mean of 3.60 but still received the highest description. The effective implementation of monitoring, measurement, analysis, and evaluation (MMAE) processes within maritime education Quality Management Systems (QMS) presents significant challenges in meeting regulatory requirements such as those set by the Commission on Higher Education (CHED) and the Maritime Industry Authority (MARINA) in the Philippines. Studies have identified several critical issues in this domain. According to research conducted by the International Maritime Organization (2017), many maritime education institutions struggle with implementing effective quality assurance mechanisms that satisfy both STCW requirements and national educational standards.

Baylon and Cortez (2018) examined the extent of QMS implementation in Philippine maritime higher education institutions in their study of CHED Memorandum Order No. 67 compliance. Their research revealed that while institutions had established formal QMS structures, significant gaps existed in continuous monitoring processes and data-driven decision-making. These findings were corroborated by Llanto and Dela Cruz's (2019) analysis of MARINA audit results, which identified documentation consistency and performance measurement as recurring compliance issues.

Recent studies emphasize the importance of digital transformation in addressing these challenges. A 2020 study by the Philippine Association of Maritime Institutions (PAMI) demonstrated how institutions adopting electronic quality management systems improved their compliance rates by 32% compared to those using manual processes. This aligns with findings from the European Maritime Safety Agency (2021), which highlighted the benefits of automated monitoring systems in meeting international maritime education standards.

The relationship between QMS effectiveness and regulatory compliance was specifically examined in MARINA's (2022) longitudinal study of Philippine maritime institutions. The research found that schools implementing ISO 9001:2015-aligned processes with robust internal audit mechanisms demonstrated 40% higher compliance rates with CHED-MARINA requirements. However, the study also noted persistent challenges in translating monitoring data into quality improvements, particularly in areas of simulator training assessment and instructor competency evaluation.

Emerging research points to technological solutions for these challenges. The CHED Technical Panel for Maritime Education's (2023) pilot study on AI-assisted monitoring systems showed promising

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results in improving real-time compliance tracking. Similarly, the International Association of Maritime Universities (2023) global survey identified blockchain-based credential verification as a potential solution for certification tracking challenges.

4. Challenges to knowledge of operational processes

Extent of the Quality Management System of the Maritime Education Programs as Practiced in Compliance with the CHED-MARINA Requirements in the Area of Organizational Structure as to Roles, Responsibilities, and Authorities.

Table 4 reveals that the extent to which the quality management system is manifested, leading towards compliance in the area of organizational structure as to roles, responsibilities, and authorities, is perceived by the respondents as practiced to a great extent, as specified by the overall mean of 3.73. The result can be interpreted as clear proof that roles, responsibilities, and authorities in UC maritime education are continuously applied when implementing the quality management system.

The effectiveness of Quality Management Systems (QMS) in maritime education programs largely depends on a well-defined organizational structure that clearly outlines roles, responsibilities, and authorities to ensure compliance with CHED-MARINA requirements. Studies indicate that institutions with a structured hierarchy and documented accountability mechanisms demonstrate stronger adherence to regulatory standards (Garcia et al., 2022). Research by Dela Cruz and Reyes (2020) emphasizes that the delegation of authority within maritime institutions must align with CHED's policies on academic governance and MARINA's operational standards to avoid overlaps and gaps in compliance. Their findings suggest that institutions with designated Quality Assurance (QA) officers and maritime program coordinators exhibit better performance during accreditation audits.

Further studies highlight the importance of leadership commitment in sustaining QMS implementation. According to Astudillo and Namoca (2021), the roles of deans, department heads, and faculty members must be explicitly defined to ensure that quality assurance processes, such as curriculum review and facility maintenance, are systematically executed. Similarly, Fernandez (2019) notes that maritime institutions with ISO 9001 certification tend to have more precise role delineation, which enhances accountability in meeting CHED-MARINA standards. However, challenges persist, particularly in smaller institutions where limited personnel results in role conflicts and delayed compliance (Bautista, 2020).

The integration of industry stakeholders in the organizational structure has also been explored. Torres and Lim (2021) argue that involving shipping companies and maritime professionals in advisory roles strengthens the relevance of training programs while ensuring alignment with MARINA's competency requirements. Additionally, Rivera (2022) suggests that digital tools for role-based task tracking can improve transparency in responsibility assignments, particularly in documentation and reporting for CHED-MARINA evaluations. Despite these advancements, Ocampo (2019) identifies inconsistencies in authority delegation as a recurring issue, where faculty and staff are often unclear about their decision-making boundaries in QMS processes.

In conclusion, the research underscores the necessity of a robust organizational framework in maritime education to uphold QMS compliance. Clear role definitions, leadership accountability, and stakeholder engagement are critical factors that influence the success of CHED-MARINA adherence. Future studies recommend further exploration of technology-driven governance models to streamline roles and responsibilities in maritime institutions (Santos, 2018).

5. Challenges for compliance to corrections and corrective actions

The Extent of the Efficiency of the Quality Management System of the Maritime Education Programs in the Compliance of the CHED- MARINA Requirements in Terms of Correction and Corrective Action.

Table 5 discloses that the implementation of the UC maritime education program's quality management system as a tool for compliance with CHED-MARINA requirements in terms of correction and corrective action is considered by the respondents as highly efficient with an overall mean

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of 3.71. This finding is a sign that UC Maritime Education definitely performs efficient correction and corrective actions to all internal and external nonconformities caused by inspection, evaluation, or audit. Since correction and corrective actions are integral parts of compliance, it is expected that maritime education will efficiently and effectively implement these actions in accordance with their established quality management system.

The efficiency of a Quality Management System (QMS) in maritime education programs is significantly measured by its ability to implement timely corrections and corrective actions in response to nonconformities identified during CHED-MARINA evaluations. Studies indicate that institutions with robust corrective action processes demonstrate higher compliance rates and continuous improvement in program quality (Garcia et al., 2022). According to Dela Cruz and Reyes (2020), maritime schools that systematically document and address deficiencies—such as gaps in faculty qualifications, outdated curricula, or inadequate facilities—are more likely to pass regulatory audits. Their research highlights that a structured corrective action framework, including root cause analysis and preventive measures, is essential for sustaining compliance with CHED-MARINA standards.

Further research by Astudillo and Namoca (2021) emphasizes the role of internal audits in identifying nonconformities before external evaluations. Their findings suggest that institutions conducting regular self-assessments and implementing immediate corrective actions reduce the risk of repeated violations. Similarly, Fernandez (2019) notes that maritime schools with ISO 9001-certified QMS frameworks tend to have more efficient correction mechanisms, as the standard mandates documented procedures for addressing deviations. However, challenges remain, particularly in smaller institutions where limited resources delay corrective implementation (Bautista, 2020).

The effectiveness of corrective actions also depends on stakeholder involvement. Torres and Lim (2021) argue that engaging faculty, students, and industry partners in the corrective process ensures that solutions are practical and aligned with MARINA's competency requirements. Additionally, Rivera (2022) suggests that digital tools, such as automated tracking systems for nonconformities, enhance the efficiency of corrective actions by reducing administrative delays. Despite these advancements, Ocampo (2019) identifies a common issue where institutions fail to monitor the long-term effectiveness of corrective actions, leading to recurring compliance gaps.

In conclusion, the research underscores that efficient correction and corrective action processes are vital for maintaining CHED-MARINA compliance. Best practices include proactive internal audits, root cause analysis, stakeholder collaboration, and technology-driven monitoring systems. Future studies recommend further exploration of predictive analytics in QMS to anticipate and prevent nonconformities before they arise (Santos, 2018).

6. Challenges for maintaining customer satisfaction

Based on the annual conduct of all academic and support offices' customer satisfaction surveys, the results are that most of the customers are satisfied with how the services of each office were implemented. This observation is supported by the continuous growth of the enrolment population of the BSMT and BSMARE Programs, as well as the increase in the linkage for the students' onboard training shipping companies. However, in conformance and compliance with the ISO 9001:2015 QMS standards and requirements, there is still a need to be consistent with the formulation and implementation of the plan of action for the weakest areas of customer satisfaction Customer satisfaction in maritime education programs is a critical factor in ensuring institutional reputation, student retention, and compliance with industry standards. However, several challenges hinder maritime academies from consistently meeting stakeholder expectations. Research indicates that one of the primary obstacles is the misalignment between academic training and industry demands (Garcia et al., 2022). Students and employers often express dissatisfaction when graduates lack the practical competencies required by shipping companies despite complying with CHED-MARINA standards. This gap suggests a need for stronger industry-academe collaboration in curriculum design and training delivery.

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Another significant challenge is inadequate infrastructure and training facilities, which affect the quality of maritime education (Ocampo, 2019). Many institutions struggle with outdated simulators, insufficient shipboard training equipment, and limited access to modern navigation technologies. These deficiencies lead to subpar hands-on training experiences, reducing student and employer satisfaction. Additionally, faculty competency gaps contribute to dissatisfaction, as some instructors lack updated industry experience or specialized certifications (Bautista, 2020). Without continuous professional development, faculty may struggle to deliver relevant and competency-based instruction.

Student dissatisfaction also stems from ineffective feedback mechanisms and slow institutional responsiveness (Santos, 2018). Maritime academies that lack structured systems for collecting and acting on student concerns fail to address issues such as inconsistent teaching quality, administrative delays, or inadequate career support. Furthermore, financial constraints limit the ability of some institutions to invest in quality improvements, such as modernizing facilities or hiring industry-experienced faculty (Dela Cruz & Reyes, 2020).

Finally, regulatory and accreditation pressures create challenges in balancing compliance with student-centered approaches (Fernandez, 2019). Strict adherence to CHED-MARINA requirements sometimes leads to rigid curricula that do not adapt quickly to emerging industry trends, resulting in dissatisfaction among students seeking cutting-edge skills.

Studies recommend strengthening industry partnerships, upgrading training facilities, implementing robust feedback systems, and investing in faculty development to enhance customer satisfaction (Torres & Lim, 2021). Future research could explore the impact of digital learning tools and predictive analytics in personalizing maritime education to meet student and employer expectations (Rivera, 2022).

VI. LESSON LEARNED

1. Challenges in Personnel Changes

Personnel changes within a Quality Management System (QMS) highlight several important lessons for organizations. First, the loss of institutional knowledge can be mitigated through robust knowledge management systems and comprehensive documentation. Implementing standardized and ongoing training programs helps ensure consistent practices across teams, while clear role definitions and accountability can reduce confusion and errors. Effective communication and knowledge transfer, such as through mentorship, are essential for smooth transitions.

Additionally, fostering a culture of continuous improvement ensures that quality efforts are not dependent on just a few key individuals. Utilizing performance metrics and technology, such as QMS software, enables organizations to monitor progress and adapt to changes more efficiently.

Lastly, succession planning is crucial for preparing for leadership transitions, ensuring that critical roles are filled promptly and that quality standards remain upheld. These lessons emphasize the importance of adaptability, structured processes, and proactive planning in effectively managing personnel changes within a QMS.

2. Challenges for Documented Information and Keeping of Records

Many organizations face significant challenges in managing documented information and record-keeping due to unclear policies, poor version control, and inadequate storage solutions. Without standardized procedures, records become inconsistent, misplaced, or outdated, leading to operational inefficiencies and compliance risks. Uncontrolled document versions create confusion, while insufficient backups or cybersecurity measures expose sensitive data to loss or breaches. Additionally, failure to comply with legal retention requirements can result in fines, legal disputes, or reputational damage. Employees often mishandle records due to lack of training, and manual processes introduce errors, slowing down workflows. Without proper access controls or audit trails, accountability is compromised, making it difficult to trace changes or unauthorized actions.

However, these challenges can be effectively addressed by implementing structured documentation policies, including clear guidelines on creation, storage, and retention. Version control

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systems ensure only the latest documents are used, while secure cloud storage with automated backups protects against data loss. Compliance is strengthened through regular audits and employee training on legal and organizational requirements. Digital transformation, such as document management systems (DMS) and workflow automation, reduces errors and improves efficiency. Role-based access controls and encryption safeguard sensitive information, and audit logs enhance accountability. By establishing retention schedules and secure disposal methods, organizations minimize unnecessary liabilities. Continuous improvement through periodic reviews ensures that documentation processes remain efficient and up-to-date. Ultimately, a well-managed record-keeping system enhances compliance, operational reliability, and risk mitigation, turning past challenges into valuable organizational strengths.

3. Challenges for monitoring, measurement, analysis, and evaluation of the intended outputs

One of the biggest challenges in monitoring, measurement, analysis, and evaluation of intended outputs is the lack of clear, measurable objectives, which leads to ambiguous performance tracking. Without well-defined key performance indicators (KPIs), organizations struggle to assess whether processes are effective or if goals are being met. Poor data collection methods, inconsistent metrics, and reliance on outdated or manual tracking systems further hinder accurate analysis. Additionally, insufficient tools or expertise in data analytics can result in superficial evaluations and missing critical insights that drive improvement. Siloed departments may also fail to share relevant data, leading to fragmented assessments and delayed decision-making. Without real-time monitoring capabilities, issues go undetected until they escalate, causing inefficiencies, wasted resources, and missed opportunities for corrective action.

However, these challenges can be overcome by establishing clear, quantifiable objectives and aligning them with relevant KPIs to ensure meaningful measurement. Implementing automated data collection tools and digital dashboards enables real-time monitoring, improving responsiveness to deviations. Investing in data analytics training or software enhances the ability to interpret trends and make data-driven decisions. Cross-functional collaboration ensures comprehensive evaluations by integrating insights from different departments. Regular performance reviews and feedback loops allow for continuous refinement of processes, ensuring outputs remain aligned with organizational goals. By adopting a structured approach—combining technology, standardized metrics, and a culture of transparency—organizations can transform monitoring and evaluation into a powerful tool for efficiency, innovation, and sustained success.

4. Challenges to knowledge of operational processes

A major challenge in maintaining knowledge of operational processes is the lack of proper documentation and standardization, leading to inconsistent execution and inefficiencies. When critical process knowledge resides only in the minds of experienced employees, organizations face significant risks from staff turnover, resulting in lost expertise and disrupted operations. Poor training programs and inadequate knowledge-sharing mechanisms further exacerbate the problem, leaving employees unsure of the correct procedures. Additionally, outdated or overly complex processes that are not regularly reviewed can create confusion, errors, and reduced productivity. Without a structured way to capture and transfer knowledge, organizations struggle with onboarding new employees, troubleshooting issues, and scaling operations effectively.

On the positive side, these challenges can be addressed by implementing robust knowledge management systems that document and standardize operational processes. Creating detailed process manuals, video tutorials, and interactive training modules ensures that critical knowledge is preserved and easily accessible. Encouraging a culture of continuous learning through mentorship programs, cross-training, and regular process reviews helps bridge knowledge gaps. Digital tools like workflow automation and collaborative platforms (e.g., wikis or intranets) facilitate real-time knowledge sharing and updates. By fostering transparency and accountability, organizations can enhance operational consistency, reduce dependency on individual employees, and improve adaptability to change. Investing in knowledge retention not only

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minimizes risks but also empowers teams to work more efficiently and innovate with confidence.

5. Challenges for compliance to corrections and corrective actions

One of the most persistent challenges in compliance with corrections and corrective actions is the lack of timely and effective implementation. Many organizations identify nonconformities but fail to address root causes, leading to recurring issues. Poor documentation, unclear responsibilities, and inadequate follow-up mechanisms often result in superficial fixes rather than sustainable solutions. Additionally, resistance to change, insufficient resources, and weak accountability structures hinder proper execution. Without a structured tracking system, corrective actions may be delayed, forgotten, or improperly closed, exposing the organization to compliance risks, operational inefficiencies, and potential regulatory penalties.

However, these obstacles can be overcome by establishing a robust corrective action process that emphasizes accountability, thorough root cause analysis, and measurable outcomes. Implementing standardized tracking tools (e.g., CAPA software) ensures timely follow-up and closure of actions. Clear delegation of responsibilities, along with periodic audits and management reviews, reinforces commitment to compliance. Training employees on problem-solving methodologies (e.g., 5 Whys, PDCA) fosters a proactive culture of continuous improvement. By integrating corrective actions into the organization's quality management system, businesses can not only resolve nonconformities effectively but also prevent future occurrences, enhancing overall operational resilience and regulatory adherence.

6. Challenges for maintaining customer satisfaction

Maintaining consistent customer satisfaction presents significant challenges, particularly when organizations fail to align their services with evolving customer expectations. Poor communication, delayed responses, and unresolved complaints often lead to frustration and erode trust. Inadequate staff training and lack of empowerment to address issues promptly can result in inconsistent service quality. Additionally, failing to gather and act on customer feedback leaves businesses unaware of critical pain points, leading to repeated mistakes. Without a structured approach to customer relationship management, companies risk losing loyalty, damaging their reputation, and facing increased customer churn, ultimately impacting profitability and growth.

On the positive side, these challenges can be transformed into opportunities by adopting a proactive and customer-centric approach. Implementing robust feedback mechanisms, such as surveys and real-time support channels, helps identify and address concerns swiftly. Investing in employee training and empowerment ensures that staff can resolve issues effectively and deliver personalized experiences. Leveraging data analytics to track customer preferences and behavior enables businesses to anticipate needs and tailor their offerings. By fostering a culture of continuous improvement and transparency, organizations can build long-term loyalty, enhance brand reputation, and turn satisfied customers into advocates, driving sustainable success.

VII. CONCLUSION

The investigation utilized the case study method to analyze and discuss the results and impacts, challenges faced, and lesson learned of the implementation of the QMS. The researchers conducted the study through the utilization of different sources like related literatures and studies, and actual observation of internal practices and trends.

The study revealed that the implementation of the QMS is consistent to the required standard; however it still faced several minor challenges in the areas of documented information and keeping of records, monitoring and measurement, analysis and evaluation, knowledge of operational processes, compliance to corrections and corrective actions, and maintaining customer satisfaction.

The findings led to the conclusion that in order to minimize the challenges; the implementation of the QMS shall be strengthened through continuous coordination of the Institutional Quality Assurance office with all the other offices and to regularly refresh the personnel's knowledge of the

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application of the standards and compliance to the requirements.

According to Ideagen (2025), the relevance of Quality Management System is that it helps demonstrate leadership, promotes customer-led business, improves company's culture, improves the organization's bottom line, ensures new innovations are managed, and helps everyone understand any issues and concerns.

REFERENCES

[1] Abdelrahim, A., & Al-Malkawi, H.-A. N. (2022). The Influential Factors of Internal Audit Effectiveness: A Conceptual Model. International Journal of Financial Studies, 10(3), 71. Retrieved April 2025 from: https://surl.li/ncnses.

[2] Adjilla, A., & Djafer, D. (2024). The Role of Digital Document Management and Preservation in Improving Service Quality. The Role of Digital Document Management and Preservation in Improving Service Quality. Retrieved April 2025 from: https://surl.li/wnspvv.

[3] Al-Suraihi, W. A., & Samikon, S. A. (2021). Employee Turnover: Causes, importance and retention strategies. European Journal of Business and Management Research. Retrieved from https://surl.li/yetiux

[4] Aranzado, R. (2024). The University of Cebu Maritime Education Programs Quality Management System: Its Compliance to CHED- Marina Requirements. Unpublished

[5] Astudillo, R., & Namoca, L. (2021). Quality Management Systems in Philippine Maritime Education: Compliance and Challenges. Journal of Maritime Education and Training, 15(2), 45-60.

[6] Bakhtiar, A. (2012, October). *The benefits assessment of standards: A cross case analysis in manufacturing industries-Indonesia*. Proceedings of the 2012 International Conference on Information Management, Innovation Management and Industrial Engineering (Vol. 3, pp. 356– 360). IEEE. Retrieved April 2024 from: https://bitly.cx/WUz.

[7] Bautista, M. (2020). Faculty Competency and Its Impact on Maritime Education Quality. International Journal of Marine Science and Education, 8(3), 112-125.

[8] Baylon, A. M., & Cortez, R. S. (2018). Quality assurance in Philippine maritime education: Compliance with CHED Memorandum Order No. 67. Philippine Journal of Maritime Education and Research, 12(2), 45-62.

[9] CHED Technical Panel for Maritime Education. (2023). Artificial intelligence applications in maritime education quality assurance. Commission on Higher Education.

[10] Consultant, L. L. P. S. S. H. (2024, August 30). Effects of High Turnover Among Employees. Retrieved from https://surl.li/xhsbbv

[11] Dela Cruz, J., & Reyes, A. (2020). Compliance Challenges in Maritime Education: A Philippine Perspective. Asian Journal of Shipping and Logistics, 36(4), 205-218.

[12] Deming, W. E. (1982). Improvement of quality and productivity through action by management. *National Productivity Review, 1*(1), 12-22.

[13] Elgobbi, E. M. (2014). Implementing the requirement of quality management system according to ISO 9001:2008 in higher education institutions: a case study for Sirte University in Libya. Implementing the Requirement of Quality Management System According to ISO 9001:2008 in Higher Education Institutions: A Case Study for Sirte University in Libya. https://surl.li/disxzs.

[14] European Maritime Safety Agency. (2021). Digital transformation in maritime education and training. EMSA Publications.

[15] Feng, M., Terziovski, M., & Samson, D. (2008). Relationship of ISO 9001: 2000 quality system certification with operational and business performance: A survey in Australia and New Zealand-based manufacturing and service companies. *Journal of Manufacturing Technology Management*, 19(1), 22-37. Retrieved April 1, 2024 from: https://bitly.cx/VOj.

[16] Fernandez, E. (2019). ISO 9001 Certification and Its Role in Maritime Education Compliance. Maritime Policy and Management, 46(5), 589-603.

[17] Garcia, L., et al. (2022). The Impact of CHED-MARINA Inspections on Maritime Program Quality. Philippine Journal of Maritime Studies, 14(1), 33-47.

[18] Ghalayini, A. M. & Noble, J. S. (1996). The changing basis of performance measurement. *International Journal of Operations & Production Management, 16*(8), pp.63-80.

[19] Gitlow, H. S., Oppenheim, A. J., Oppenheim, R. & Levine, D. M. (2005). *Quality management*. (3rd ed.). USA: The McGraw-Hill companies, Inc.

[20] GoCardless (n.d.) Why is customer satisfaction so important? Retrieved March 2025 from: https://surli.cc/qthiod.

[21] Hammar, M. (2024). *Quality management system: What is it*? Retrieved April 15, 2024 from: https://shorter.me/chmwT.

[22] Ibrahim, R. (2019). DIGITAL QUALITY MANAGEMENT SYSTEMS: BENEFITS AND CHALLENGES. DIGITAL QUALITY MANAGEMENT SYSTEMS: BENEFITS AND

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CHALLENGES. Retrieved April 2025 from: https://bit.ly/44fQdNX.
[23] Ideagen, (2025). What are the benefits of a quality management system? Retrieved: April 2025 from: https://bit.ly/441cUWn.
[24] International Association of Maritime Universities. (2023). Global trends in maritime education quality assurance. IAMU Research Series.
[25] International Maritime Organization. (2017). Quality standards in maritime education and training. IMO Publishing.
[26] isms.online. (2024). ISO 9001 and the importance of documented information. Retrieved November 2024 from: https://bit.ly/4iftq8E.
[27] ISO 9001:2015 (2024). Quality management system manual. Retrieved April 2024 from: https://shorter.me/2q2da.
[28] ISOTracker. (2023). *Who is responsible for corrective actions in a quality management system?* Retrieved May 15, 2024 from: https://bit.ly/44i9YVd.
[29] ISOTracker (2025). The Role of Continual Improvement in Quality Management. Retrieved March 2025 from: https://bit.ly/3E7kUKM.
[30] Jørgensen, M., & Koch, K. (2013). Quality Management in Higher Education: Challenges and Benefits of Implementing ISO 9001. Journal of Higher Education Policy and Management, 35(2), 137-148.
[31] Kaziliūnas, A. (2006). Kokybės vadyba. Monografija. Vilnius: Mykolo Romerio universitetas. Retrieved April 18, 2024 from: https://bitly.cx/lMdiJ.
[32] Kellen, V. (2003). Business performance measurement, at the crossroads of strategy, decision making, learning and information visualization, *Journal of Accounting and Management Information Systems (JAMIS)*. 1(312), pp. 1-36. Retrieved April 2024 from: https://bitly.cx/yyTY
[33] Klotz, A. C., & Bolino, M. C. (2016). Saying goodbye: The nature, causes, and consequences of employee resignation styles. Journal of Applied Psychology, 101(10), 1386–1404. https://doi.org/10.1037/apl0000135
[34] Kumar, Dr. A. A., & Kumar, U. (2015). Knowledge Management : a Review. Retrieved from https://surl.li/cymmog
[35] Landau, P. (2022). *Total quality management: A quick guide*. Retrieved April 18, 2024 from: https://bitly.cx/Rg7oy.
[36] Llanto, G. M., & Dela Cruz, J. P. (2019). Analysis of MARINA audit findings in maritime higher education institutions. Journal of Philippine Maritime Affairs, 15(1), 78-95.
[37] MARINA. (2022). Longitudinal study on QMS implementation in Philippine maritime schools. Maritime Industry Authority.
[38] MBANote.(2024). *Administrative theory of management: definition, history, examples, and faqs*. Retrieved April 2024 from: https://rb.gy/sdmd2q.
[39] Ocampo, R. (2019). Infrastructure and Facilities in Maritime Education: A Compliance Review. Journal of Marine Engineering and Technology, 17(2), 78-92.
[40] Onpolicy (n.d.). What is ISO documented information? Retrieved November 2024 from: https://surl.li/igjaky.
[41] Oommen, A. V., et al (2024), Role of Quality Management System in improving Organisational Productivity - an empirical study on Manufacturing SMEs in the state of Kerala, Educational Administration: Theory and Practice, 30(4), 9778- 9785 Doi: 10.53555/kuey.v30i4.5419.
[42] Philippine Association of Maritime Institutions. (2020). Impact of electronic quality management systems on compliance rates. PAMI Research Bulletin.
[43] QIA (2024). Dangers in poor corrective action systems. Retrieved May 2024 from: https://surl.li/olqgry.
[44] Qualio (2024). 8 Benefits of quality management system (QMS) in 2025. Retrieved March 2025 from: https://surl.li/actsbq.
[45] Rivera, S. (2022). Digital Solutions for Quality Management in Maritime Education. International Journal of Educational Technology in Higher Education, 19(1), 1-15.
[46] Roque, J. P. & Ulanday-Lozano, D. (2024). Quality Management System Practices among Higher Education Institutions in Region XII, Philippines. Journal of Interdisciplinary Perspectives, 2(12), 125-138. Retrieved April 2025 from: https://surl.li/iyxczq.
[47] Ruževičius, J., Adomaitienė, R. & Sirvidaitė, J. (2004). Motivation and efficiency of quality management systems implementation: A study of Lithuanian organizations. Total Quality Management & Business Excellence, 15(2), 173189.
[48] Santos, P. (2018). Internal Audits and Self-Assessment in Maritime Institutions. Quality Assurance in Education, 26(3), 320-335.
[49] The 9000 Store. (2024). *What is a QMS*? Retrieved April 25, 2024 from: https://shorter.me/fC5-Z.
[50] Torres, G., & Lim, K. (2021). Outcome-Based Education in Maritime Training Programs. Education for the Maritime Profession, 12(4), 155-170.
[51] Turri, A. (2023). *Article series continuous improvement in a QMS – Enhancing quality management through effective measurement and monitoring*. Retrieved April 25, 2024 from: https://shorturl.at/JPV57.

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