Impact of Quality Management System Practices on the Business Performance of a Government Corporation in Clark Freeport Zone, Philippines

Jherson L. Quiambao*, Karlo Nicolas G. Alvaro

Don Honorio Ventura State University, Bacolor, Pampanga, Philippines

ABSTRACT

Quality Management System [QMS] is an emerging management philosophy that takes its course amid today’s competitive and dynamic global markets where quality becomes a critical factor of business excellence. Discovering its value as a success factor, many studies were conducted to determine the level of influence of QMS practices on the business performance. Invested from the non-consensus findings from these studies and the scarcity of published papers about QMS in Philippine government corporations, the researchers conducted quantitative research in a government corporation in Clark Freeport Zone, Philippines, designed with descriptive, cross-sectional, causal-comparative framework to determine the impact of the QMS practices on its business performance. A 40-item close-ended survey instrument, tested for validity and reliability, was developed to measure the QMS practices in the context of the ISO 9001:2015 QMS, and the Business Performance in the perspectives of the Balanced Scorecard. This was accommodated by 125 respondents, representing 88% of its target population. Results revealed that the QMS practices dimensions top management leadership, customer orientation, process control and improvement, and employee engagement each had significant positive impact on each business performance perspectives financial, customer, internal business processes, and innovation and learning of the subject government corporation. Determining the influence of quality practices on business performance is significantly relevant in government corporations since these entities act as both a public sector and a business entity. It creates an opportunity for the Philippine leaders to justify the national thrust of delivering quality-oriented government service to the Filipino people.

Keywords: Quality Management System, ISO 9001:2015, Business Performance, Balanced Scorecard, Government Corporation

How to cite:
Introduction

Quality is the great divider in global competition. With the steady rise of consumer consciousness on quality triggered by the expansion of the global markets, institutions are left with no other option but to integrate quality improvement in their products, services and processes, in order to meet the global demand for high quality commodity and service, and rise above the competition.

As quality is a critical determinant of excellence in the operations of any industry, having it as the standard that maintains competitive advantage (Al-Najjar & Jawad, 2011, as cited in Nurcahyo & Habiburrahman, 2021), organizations tend to conduct activities to incorporate the concept of quality in the working atmosphere—be it with the product and service, or the internal controls of the organization.

And because of this, the management of quality has become one of the most vital management practices to date.

Driven by the demand for better business performance brought about by globalization, the activities attempting to achieve a quality-oriented ways of working enforced the emergence of the concept of Quality Management System [QMS] among organizations, which according to Andreeva et al. (2019) is one path to business excellence. Theofilos and Evangelia (2020) defined QMS as the set of policies, processes and procedures required for planning and delivering in the core business area of an organization, regardless of its kind and size, be it in the production, development or service.

The application of QMS is expressed in standards. And the one that gets the global consensus in establishing the guidelines of QMS is the ISO 9001:2015 QMS standards (Ahmudi et al., 2018). It is a general notion that quality is the universal language in which a consumer assesses a product or a service (Isharyadi & Kristiningrum, 2021). Because of this, the need for a guarantor, such as the ISO, to vouch for the quality offered is sought. As a consequence, being a tangible attestation of having passed quality audits, many organizations across the world have applied in the roster of ISO-certified businesses. In the 2021 latest survey published by the ISO, it showed that there were already 1,077,884 valid certifications worldwide, and 3,481 of these were found in the Philippines (ISO, 2022).

Generally, the QMS certification is a voluntary undertaking (Bravi et al., 2019). In the Philippines, while it is generally an optional requirement, the Philippine Government enforces the virtues of the QMS standards when it required its government agencies, owned or controlled corporations, and government financial institutions attached to the executive branch to establish their own QMS and get certified (Exec. Ord. No. 605, s. 2007).

The subject of this study, for instance, is a government corporation in the Philippines, with an active ISO 9001:2015 QMS. It has a mandate of operating and managing a 2,200-hectare of government lands in the Clark Freeport Zone in the province of Pampanga, Philippines.

Initially, the subject organization had two distinct business operations: aeronautical and the non-aeronautical operations. The former refers to its mandate of operating and maintaining an airport within its area of jurisdiction while the latter is the mandate of developing the area around it.

However, in August 2019, the national government privatized the operation and maintenance of the airport within its jurisdiction, thus, leaving the development of the area around it as its main line of business. Hence, to date, the subject organization solely generates revenue through its real estate management function.

With this reorganization came the reclassification of the scope of its QMS. Beginning 2010 until the year 2019, the scopes of the ISO 9001 certification covered the international passenger facilitation process and the internal operating process. Then post-privatization of its airport, the scope of its ISO 9001 certification was changed into estate management and processing of lease of lands, building and structures under its jurisdiction. Its certification is valid until January 2024, subject to an annual surveillance audit conducted by an external auditing body which confers it.

Similar with the comprehensive literature review of Mahmood et al. (2014, as cited in Sweis et al., 2019), this study synthesized the quality practices of the subject organization...
The intention of keeping the organization ISO-certified is anchored on the notion that it improves business performance. Measured by the concept of Balanced Scorecard (BSC) (Mafini & Pooe, 2013; Parso et al., 2021), it seeks to improve not only the financial aspects of the operations, but rather, even the non-financial attributes that define its overall performance. Collectively, these are performance indicators seen in four perspectives, namely: Financial Perspective (FP), Customer Perspective (CP), Internal Business Processes Perspective (IBPP), and Innovation and Learning perspective (ILP).

The findings of Kharub and Sharma (2018) supported this notion of causality as they conclude in their study that QMS serves as a factor on improving business performance. Donald et al. (2015) also weighed in as they state that when the QMS standards are implemented well, it can bring out radical change in the institutional performance. And while several studies had already established a significant connection between the implementation of the QMS and its impact in the performance of various organizations, there were also research papers which significantly concluded otherwise (Bakator & Ćoćkalo, 2018; Willar et al., 2016).

The non-consensus claims made by several authors inspired the researchers to dwell further on the causal relationship of the QMS practices and business performance. Besides, conducting the research in the subject organization is a significant initiative considering that there are still only few studies choosing service industries as their subject, and a quasi-government at that. More so, the novelty of the study is also backed up by the fact that among the 105 government corporations across the Philippines (DAP, 2020), no published study on QMS on them is available to date. Moreover, the scarcity of published papers focusing on quasi-government such as the subject organization even encouraged the researchers to pursue this unexplored field. And most importantly, to relate the concepts of QMS with business performance through the perspectives of the BSC is beneficial in assisting the agency and similar government arms on their continuous quality improvement programs and future policy making on the standardization of government service processes.

**Research Framework**

The researchers anchored this study on the IV-DV framework adapted from previous research studies that examined the impact of quality practices on business performance (Anggadini et al., 2021; Maqsood et al., 2019), as illustrated in Figure 1.

Dimensions of QMS practices were used as independent variables, namely: TML, CO, PCI, and EE. The dimensions of BSC were used as the dependent variables, namely: FP, CP, IBPP, and ILP.

**Figure 1. Research Framework**
Hypotheses
Ho₁: Each QMS practices dimension has no significant impact on Financial Perspective.
Ho₂: Each QMS practices dimension has no significant impact on Customer Perspective.
Ho₃: Each QMS practices dimension has no significant impact on Internal Business Processes Perspective.
Ho₄: Each QMS practices dimension has no significant impact on Innovation and Learning Perspective.

Methods
Designs
This study utilized quantitative research that is a combination of a descriptive, causal-comparative and action research designs. It was carried out by obtaining information from the respondents on their discernment of the QMS practices and their assessment of the business performance of the subject organization.

Instrument
The researchers initially developed the instrument to measure the dimensions of the QMS practices and the dimensions of the Business Performance. It underwent and passed content validity test and reliability test. Content Validity test was performed with the three quality and academic experts from the Don Honorio Ventura State University, while the Reliability test was performed through a pilot study conducted in a government agency in the province of La Union, Philippines.

All dimensions yielded acceptable Cronbach’s alphas which were the bases of the reliability of the developed instrument. Nunnally and Bernstein (1994, as cited in Sousa et al., 2009) recommended that for a tool to be reliable, the Cronbach’s Alpha should have a 0.70 minimum value. The computed Cronbach’s Alpha coefficients of the eight dimensions used in this study were: TML - 0.73; CO - 0.81; PCI - 0.81; EE - 0.88; FP - 0.84; CP - 0.92; IBPP - 0.95; and ILP - 0.95, respectively.

The instrument was finalized into a 40-item close-ended survey instrument with a four-point Likert Scale where each variable is measured with five questions or indicators.

Respondents
Using convenience and purposive sampling methods, the researchers involved the population of the subject organization as its respondents. The study was conducted among its employees located at the Clark Freeport Zone in the Province of Pampanga, Philippines with employee-employer relationship. The basis of the delimitation of the job level was determined based on the level of involvement of said personnel in the QMS practices.

Scopes and Limitations
The scope of the study covered only the employees working in subject organization, located at the Clark Freeport Zone in the province of Pampanga in June 2022.

Also, the instrument developed was specifically designed to solicit the insights of internal stakeholders of the subject organization on the following constructs: TML, CO, PCI, EE, FP, CP, IBPP, and ILP.

The context of each statement or indicator in the instruments suggests that only those respondents with access to information exclusively available within the organization can answer them. This means that the instrument cannot be used to measure the opinion of the external stakeholders such as regulators and customers.

And last, the data obtained in this study satisfied the following set criteria: 1) they were consistent with the research designs utilized; and 2) the data were processed through the statistical software program Statistical Package for the Social Sciences [SPSS].

Response Rate
The researchers collected 100% of the 142 survey forms disseminated and achieved an 88% response rate (125 out of 142) which is an acceptable value when compared to the prescribed rate in general management research papers suggested by Mellahi and Harris (2016) which is above 50%.

Eleven respondents answered the survey questionnaire via online while the rest responded through printed questionnaires.

Table 1 shows the overwhelming support of the respondents coming from the employees with permanent designations accounting for
the 94% average response rate (103 out of 110) among the target population where casual project employees are excluded. Sixty nine percent (22 out of 32) response rate from the project employees was also accounted for.

The researchers also noted that the 17 (12%) excluded survey forms consisted of three spoiled forms due to incompleteness and 14 survey forms which were returned blank.

<table>
<thead>
<tr>
<th>Employment Type</th>
<th>Administered Forms</th>
<th>Completed Forms</th>
<th>Response Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive</td>
<td>5</td>
<td>4</td>
<td>80%</td>
</tr>
<tr>
<td>Middle Management</td>
<td>18</td>
<td>18</td>
<td>100%</td>
</tr>
<tr>
<td>Supervisory</td>
<td>16</td>
<td>16</td>
<td>100%</td>
</tr>
<tr>
<td>Rank and File</td>
<td>69</td>
<td>63</td>
<td>91%</td>
</tr>
<tr>
<td>Project Employees</td>
<td>32</td>
<td>22</td>
<td>69%</td>
</tr>
<tr>
<td>Co-terminus</td>
<td>2</td>
<td>2</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>142</td>
<td>125</td>
<td>88%</td>
</tr>
</tbody>
</table>

Source: Researchers’ collected data

Ethical Consideration

The researchers acknowledge the importance of data privacy, copyright, and freedom of access to information for government reports, and therefore, facilitated all communications necessary to secure permission before advancing further to any stage of the research process.

The researchers also adhered with the scope of the access to documents pursuant to the Philippines’ prevailing policies on access to information, data privacy and government disclosures.

Statistical Treatment

First, descriptive analyses were performed by computing the population mean and the population standard deviation of each variable used in this study.

Second, to determine the individual strength of causality of each QMS dimension on the perspectives of the BSC, as a basis of the inferential analyses, the researchers performed individual regressions using the statistical program SPSS version 26 of the IBM.

It was the most applicable model since the researchers compared each of the four independent variables against each of the four dependent variables.

As a rule of thumb, a direct causality is established if $p$-value is less than 0.05 and $t$-value is greater than 1.96, using a 95% confidence interval.

Results and Discussion

Descriptive Analyses of the Variables Used

The researchers sought to analyze the scores obtained from the respondents about the QMS practices of the subject organization in view of the principles of the ISO 9001:2015 QMS.

Table 2 summarizes the computed mean and standard deviation where results show that the respondents assess the quality practices of the subject organization to be totally sufficient when it comes to the standards of the ISO QMS, revealing an overall mean of 3.44 favoring a strong agreement to the indicators, and an overall standard deviation of 0.52 which indicates that the data were only slightly dispersed while leaning toward the affirmative side of the scale.
Table 2. Mean and Standard Deviation of the QMS Practices Dimensions

<table>
<thead>
<tr>
<th>QMS</th>
<th>Population Mean</th>
<th>Adjectival Equivalent</th>
<th>Population Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>TML</td>
<td>3.45</td>
<td>Totally Sufficient</td>
<td>0.50</td>
</tr>
<tr>
<td>CO</td>
<td>3.41</td>
<td>Totally Sufficient</td>
<td>0.52</td>
</tr>
<tr>
<td>PCI</td>
<td>3.41</td>
<td>Totally Sufficient</td>
<td>0.54</td>
</tr>
<tr>
<td>EE</td>
<td>3.47</td>
<td>Totally Sufficient</td>
<td>0.53</td>
</tr>
</tbody>
</table>

Note. N=125 (n=125 for each dimension); Source: Researcher’s collected data; Likert Scale: Chang, 1994 and Jones & Linderman, 2014.

The researchers also analyzed the scores obtained from the respondents on how they assessed its business performance in view of the perspectives of the BSC.

Table 3 collectively shows the computed mean and standard deviation where the results denote that the respondents consider the subject organization to be excellent in all of the performance indicator aspects used in this study, even revealing an overall mean of 3.34 favoring a strong agreement in the indicators, and an overall standard deviation of 0.58 which indicates that the data were only slightly dispersed while leaning toward the affirmative side of the scale.

Table 3. Mean and Standard Deviation of the BSC Perspective Dimensions

<table>
<thead>
<tr>
<th>BSC</th>
<th>Population Mean</th>
<th>Adjectival Equivalent</th>
<th>Population Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>FP</td>
<td>3.40</td>
<td>Excellent</td>
<td>0.59</td>
</tr>
<tr>
<td>CP</td>
<td>3.35</td>
<td>Excellent</td>
<td>0.57</td>
</tr>
<tr>
<td>IBPP</td>
<td>3.32</td>
<td>Excellent</td>
<td>0.58</td>
</tr>
<tr>
<td>ILP</td>
<td>3.28</td>
<td>Excellent</td>
<td>0.59</td>
</tr>
</tbody>
</table>

Note. N=125 (n=125 for each dimension); Source: Researchers’ collected data; Likert Scale: Chang, 1994 and Mousavi et al., 2019.

Inferential Analyses of the Effect of QMS Practices on Financial Perspective

The researchers tested if the QMS Practices have significant impacts on the financial perspective of business performance of the subject organization. Table 4 collectively shows the results of individual regressions performed to the variables where it was determined that each QMS practices dimension has significant effect on financial perspective.

First, on the regression of TML on FP, it was observed that there is very strong evidence of causality where a change of one standard deviation in the TML corresponds to a 0.673 standard deviation change on the FP (t = 10.088, p = 0.000). On the other hand, FP equals to 0.950 when the CO is zero. This is similar with the result observed by Chege and Bett (2019) on the role of CO in improving finances.

Second, on the regression of CO on FP, it was observed that there is very strong evidence of causality where a change of one standard deviation in the CO creates a 0.639 standard deviation change on the FP (t = 9.214, p = 0.000). On the other hand, FP is valued at 0.950 when the CO is zero. This result is consistent with the study Psomas and Jaca (2016) who explored the causality of both variables.

And last, on the regression of EE on FP, it was observed that there is very strong evidence of causality where a change of one standard
deviation in the CO creates a 0.710 standard deviation change on the FP (t = 11.196, p = 0.000). On the other hand, FP is valued at 0.724 when the EE is zero.

This result is similar with the study of Muiruri (2016) among the public sector organizations where it was concluded that the implementation of the QMS results to improved employee participation which had later on positive effect on organization performance had measured in financial indicators.

Table 4. Regression Coefficient of QMS Practices and Financial Perspective

<table>
<thead>
<tr>
<th>Coefficient</th>
<th>Standardized Coefficient</th>
<th>T value</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Const.)</td>
<td>0.950</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TML</td>
<td>0.710</td>
<td>0.673</td>
<td>10.088</td>
</tr>
<tr>
<td>(Const.)</td>
<td>0.852</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO</td>
<td>0.748</td>
<td>0.639</td>
<td>9.214</td>
</tr>
<tr>
<td>(Const.)</td>
<td>0.601</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI</td>
<td>0.822</td>
<td>0.739</td>
<td>12.176</td>
</tr>
<tr>
<td>(Const.)</td>
<td>0.724</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EE</td>
<td>0.772</td>
<td>0.710</td>
<td>11.196</td>
</tr>
</tbody>
</table>

Note. Dependent Variable: Financial Perspective. Significant if: p<0.05; t>1.96

Inferential Analyses of the Effect of QMS Practices on Customer Perspective

The researchers examined if the QMS Practices have significant impacts on the financial perspective of the business performance of the subject organization. Table 5 collectively shows the results of individual regressions performed to the variables revealing that each QMS practices dimension has significant effect on customer perspective.

First, on the regression of TML on CP, it was observed that there is very strong evidence of causality where a change of one standard deviation in the TML corresponds to a 0.692 standard deviation change on the CP (t = 10.640, p = 0.000). On the other hand, CP equals to 0.791 when the value of TML is zero. A strong association between TML and CP was also determined by past study of Psomas and Jaca (2016).

Second, on the regression of CO on CP, it was observed that there is very strong evidence of causality where a change of one standard deviation in the CO creates a 0.646 standard deviation change on the CP (t = 9.388, p = 0.000). Meanwhile, in a study in Korea, the role of customer data management in the QMS was observed to significantly affect customer satisfaction (Kim, 2020).

Third, on the regression of PCI on CP, it was observed that there is very strong evidence of causality where a change of one standard deviation in the PCI corresponds to a 0.681 standard deviation change on the CP (t = 10.314, p = 0.000). On the other hand, CP equals to 0.732 when the value of PCI is zero. The study of Gębczyńska and Wolniak (2018), however, revealed that process maturity doesn’t drive customer satisfaction.

And last, on the regression of EE on CP, it was observed that there is very strong evidence of causality where a change of one standard deviation in the EE creates a 0.646 standard deviation change on the CP (t = 9.360, p = 0.000). On the other hand, CP is valued at 0.879 when the EE is zero. This result is similar with the study of Joannes (2020) where it was determined
that employee involvement significantly influenced customer satisfaction.

In an overall assessment, it was observed that the strongest level of influence on CP was determined to be the practices that relate to TML \( (\beta = 0.692, t = 10.640, p\text{-value} = 0.000) \) while the weakest was the CO \( (\beta = 0.645, t = 9.360, p\text{-value} = 0.000) \). As the subject organization mostly serves foreign and domestic locators it being a real estate agency, investment considerations are always entailed in customer assessments.

### Table 5. Regression Coefficient of QMS Practices and Customer Perspective

<table>
<thead>
<tr>
<th></th>
<th>Unstandardized. Coefficient</th>
<th>Standardized Coefficient</th>
<th>T value</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Const.)</td>
<td>0.791</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TML</td>
<td>0.070</td>
<td>0.692</td>
<td>10.640</td>
<td>0.000</td>
</tr>
<tr>
<td>(Const.)</td>
<td>0.739</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO</td>
<td>0.645</td>
<td></td>
<td>9.360</td>
<td>0.000</td>
</tr>
<tr>
<td>(Const.)</td>
<td>0.767</td>
<td>0.082</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI</td>
<td>0.681</td>
<td></td>
<td>10.314</td>
<td>0.000</td>
</tr>
<tr>
<td>(Const.)</td>
<td>0.769</td>
<td>0.075</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EE</td>
<td>0.646</td>
<td></td>
<td>9.388</td>
<td>0.000</td>
</tr>
</tbody>
</table>

**Note.** Dependent Variable: Customer Perspective. Significant if: \( p<0.05; t>1.96 \)

### Inferential Analyses of the Effect of QMS Practices on Internal Business Processes Perspective

The researchers tested if the QMS Practices have significant impacts on the internal business processes perspective of business performance of the subject organization.

Table 6 collectively shows the results of individual regressions performed to the variables revealing that each QMS practices dimension has significant effect on internal business processes perspective.

First, on the regression of TML on IBPP, it was observed that there is very strong evidence of causality where a change of one standard deviation in the TML corresponds to a 0.660 standard deviation change on the IBPP \( (t = 9.745, p = 0.000) \). On the other hand, IBPP equals to 0.747 when the value of TML is zero.

Previous study of Fitriyani et al. (2021) aligns with this result as they determined causal relationship between TQM practices and the four perspectives of the BSC where TML had the highest level of influence.

Second, on the regression of CO on IBPP, it was observed that there is very strong evidence of causality where a change of one standard deviation in the CO creates a 0.646 standard deviation change on the IBPP \( (t = 9.387, p = 0.000) \).

On the other hand, IBPP is valued at 0.747 when the CO is zero. Similar to this finding, the importance of customer-centric business process was also the focus of the study of Trkman et al. (2015).

Third, on the regression of PCI on IBPP, it was observed that there is very strong evidence of causality where a change of one standard deviation in the PCI corresponds to a 0.691 standard deviation change on the IBPP \( (t = 10.606, p = 0.000) \). On the other hand, IBPP equals to 0.520 when the value of PCI is zero.

The results of this study were backed up by the study of Sanjaya and Mayola (2019) among state-owned enterprises as they determined positive causal relationship between the employment of TQM and business performance.

And last, on the regression of EE on IBPP, it was observed that there is a very strong evidence of causality where a change of one standard deviation in the EE creates a 0.646 standard deviation change on the IBPP \( (t = 9.387, p = 0.000) \).

On the other hand, IBPP is valued at 0.715 when the EE is zero.

Empirical studies showed that there is direct causality between employee engagement and improvement of internal business processes (Muller et al., 2018; Kasim et al., 2018).
In an overall assessment, of the four dimensions of the QMS practices, the researchers observed that the PCI has the highest level of influence in IBPP \((\beta = 0.691, t = 10.606, p\text{-value} = 0.000)\) while CO has the lowest level of influence \((\beta = 0.644, t = 9.346, p\text{-value} = 0.000)\).

This infers that its efficiency in the business processes is greatly related to the standardization of its procedures and the constant evaluation of these to facilitate with effective business decisions.

### Table 6. Regression Coefficient of QMS Practices and Internal Business Processes

<table>
<thead>
<tr>
<th></th>
<th>Unstandardized Coefficient</th>
<th>Standardized Coefficient</th>
<th>T value</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Const.)</td>
<td>0.747</td>
<td>0.744</td>
<td>0.076</td>
<td>0.660</td>
</tr>
<tr>
<td>TML</td>
<td></td>
<td>0.569</td>
<td>0.086</td>
<td>0.644</td>
</tr>
<tr>
<td>(Const.)</td>
<td>0.520</td>
<td>0.805</td>
<td>0.087</td>
<td>0.691</td>
</tr>
<tr>
<td>PCI</td>
<td></td>
<td>0.715</td>
<td>0.080</td>
<td>0.646</td>
</tr>
<tr>
<td>EE</td>
<td></td>
<td>0.749</td>
<td>0.080</td>
<td>0.646</td>
</tr>
</tbody>
</table>

*Note.* Dependent Variable: Internal Business Processes Perspective. Significant if: \(p<0.05; t>1.96\)

**Inferential Analyses of the Effect of QMS Practices on Innovation and Learning Perspective**

The researchers tested if the QMS Practices have significant impacts on the innovation and learning perspective of business performance of the subject organization. Table 7 collectively shows the results of individual regressions performed to the variables revealing that each QMS practices dimension has significant effect on ILP.

First, on the regression of TML on ILP, it was observed that there is very strong evidence of causality where a change of one standard deviation in the TML corresponds to a 0.651 standard deviation change on the ILP \((t = 9.509, p = 0.000)\). On the other hand, ILP equals to 0.671 when the value of TML is zero.

The study of Fadriyani et al. (2021) align with the result of this study as they determined that TQM practices measured in leadership affected the ILP of the BSC.

Second, on the regression of CO on ILP, it was observed that there is very strong evidence of causality where a change of one standard deviation in the CO creates a 0.620 standard deviation change on the ILP \((t = 8.542, p = 0.000)\). On the other hand, ILP is valued at 0.749 when the CO is zero.

Related to this result, the study of Sehlin et al. (2019) revealed that a higher level of process maturity acquired through continuous improvement had higher tendency to facilitate the innovative initiative of the subject.

Completely disputing this result was found out in the research of Sadikoglu and Olcay (2014) where they did not establish any significant causality between CO and ILP.

Third, on the regression of PCI on ILP, it was observed that there is very strong evidence of causality where a change of one standard deviation in the PCI corresponds to a 0.669 standard deviation change on the ILP \((t = 9.986, p = 0.000)\). On the other hand, ILP equals to 0.491 when the value of PCI is zero.

Related to this result, the study of Knox and Marin-Cadavid (2022) concurs with this outcome as they established the significance of EE in innovative initiatives of public service organizations.

And last, on the regression of EE on ILP, it was observed that there is very strong evidence of causality where a change of one standard deviation in the EE creates a 0.610 standard deviation change on the ILP \((t = 8.542, p = 0.000)\). On the other hand, ILP is valued at 0.749 when the EE is zero.

Knox and Marin-Cadavid (2022) concurs with this outcome as they established the significance of EE in innovative initiatives of public service organizations.

In an overall assessment, it is observed from the regression administered that PCI has
the highest level of influence on ILP ($\beta = 0.669$, $t = 9.986$, $p$-value = 0.000) while EE has the lowest level of influence ($\beta = 0.610$, $t = 8.542$, $p$-value = 0.000).

This means that the innovation performance of the subject organization is leaning more on the development of its process management.

### Table 7. Regression Coefficient of QMS Practices and Innovation and Learning Perspective

<table>
<thead>
<tr>
<th>Practice</th>
<th>Unstandardized Coefficient</th>
<th>Standardized Coefficient</th>
<th>T value</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Const.)</td>
<td>0.671</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TML</td>
<td>0.754</td>
<td>0.079</td>
<td>9.509</td>
<td>0.000</td>
</tr>
<tr>
<td>(Const.)</td>
<td>0.559</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO</td>
<td>0.797</td>
<td>0.091</td>
<td>8.757</td>
<td>0.000</td>
</tr>
<tr>
<td>(Const.)</td>
<td>0.491</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI</td>
<td>0.817</td>
<td>0.082</td>
<td>9.986</td>
<td>0.000</td>
</tr>
<tr>
<td>(Const.)</td>
<td>0.749</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EE</td>
<td>0.728</td>
<td>0.085</td>
<td>8.542</td>
<td>0.000</td>
</tr>
</tbody>
</table>

*Note.* Dependent Variable: Innovation and Learning Perspective. Significant if: $p<0.05$; $t>1.96$

### Conclusion

The result of the multiple individual regressions performed revealed that each QMS practices dimension is a predictor of each business performance perspective. This means that the null hypotheses which state that each QMS practices dimension has no impact on financial perspective ($H_{01}$), on customer perspective ($H_{02}$), on internal business processes perspective ($H_{03}$), and on innovation and learning perspective ($H_{04}$), are all rejected.

The descriptive assessment of the respondents collectively implies that while the subject organization performs quality practices as a requirement of the ISO standard, it essentially receive intrinsic gains clearly displayed by the improvement in the many aspects of its operations.

In other words, by keeping a functional quality management system, an organization may improve its financial condition because QMS standardizes financial control systems, it may improve its customer satisfaction rating as QMS sets systematic ways of acquiring and processing customer information, it may improve internal processes because QMS specializes in process management, and it may trigger innovation and learning initiatives because its purpose is aiming for the continuous improvement of the operations.

Establishing the causality between the QMS and the business performance is an open opportunity for government corporations in the Philippines to keep on strengthening their existing quality management systems since they are statistically proven in this study to facilitate business excellence.

### Acknowledgement

The researchers recognize the valuable contributions of the members of the Graduate School Thesis Committee in the development of this research, particularly to Dr. Joan Reyes, Dr. Alma Dela Cruz, and Dr. Yuri Akiate.

Also, special regards to Dr. Enrique Baking, the President of Don Honorio Ventura University, and Dr. Dolores Quiambao, the Dean of the Graduate School, for fully supporting the researchers in this endeavor.

### References


Andreeva, T., Popova, L., Yashina, M., Babynina, L., Yaksanova, N., & Natsypaeva, E. (2019). Integration of the quality management and strategic management systems into unified management system of enterprises. Quality Access to Success, 20(171), 3-
8. https://pro-quest.com/open-view/b06ab419c7c6cd14650d7274bf6e0ab5/1?gqorigsite=pscholar&ch=1046413


