

**Governing Company Performance Agility  
through Strategic Quality Management  
Principles and Lean Business Practices:  
Evidences and Challenges for the Business  
Industry in the Philippines**

— *Review of* —  
**Integrative  
Business &  
Economics**  
— *Research* —

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**ABSTRACT**

This study turned to be a research model highlighting the primary influential factors of sustainable entrepreneurship, implementing six strategic quality management indicators and six lean techniques resulting into business performance agility and sustainability focused on MSME's located in four major provinces in the Philippines. It was administered to a stratified sample of 400 selected enterprise owner mostly sole proprietorship, family-owned Micro enterprises operating in less than five years. MSME Entrepreneurial Sustainability is highly attributed from Lean business practices in terms of Product and service value management, Cost Leadership, Process Utilization, Procurement Time Management, Enterprise Resource Management, and Risk Management as well as the implementation of strategic quality management on customer focus, strategic leadership practices, employee engagement, process approach, system approach, Continual Improvement & Innovation Practices and Mutually Beneficial Supplier Relationships. Business Lean Practices are slightly attributed from the type of business ownership, years of existence in the industry and average number of employees respectively regardless of the type of business organization, the kind of industry engaged with and their business location. With this, MSME should embrace, adapt and intensify their implementation of SQM and LBP in their business processes and operation that is geared toward higher business performance and long-term firm profitability.

Keywords: Strategic Quality Management, Lean business techniques, sustainable entrepreneurship, business performance agility.

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**1. INTRODUCTION**

The Environmental Performance Index of Yale University and Columbia University evaluates the environmental performance of 163 countries of which the Philippines is being left behind by many of its neighbors in terms of competitiveness. In most competitiveness surveys, its ranking has been sliding while its ASEAN neighbors, particularly Indonesia and Vietnam, ranked lower in the past years, have been overtaking the Philippines. As these figures clearly demonstrate, the Philippines have been on a downward trajectory in international competitiveness rankings during the current decade, especially for corruption, governance, and infrastructure. Focused efforts to reverse the trend have been underway but have a long way yet to prove their effectiveness. According to National Competitiveness Council in the Philippines (2017), three convergent pillars were found among the most common key indicator of business competitiveness areas and one of which is Economic Dynamism associated with activities that create stable expansion of business and industries and higher employment. This is the concrete representation of productivity as it matches the output of the local economy with local resources. Conceptually, it is the combination of the entrepreneurial spirit and the financial institutions that will channel dynamism (Edmund Phelps). It is recognized that localities are the centers of economic activities. Therefore, business expansion and job creation are easily observable in local settings through entrepreneurial creation and co-creation among Micro, Small, Medium and large enterprises.

Because we are at the berg of a fast-changing era, organizations today particularly Micro, Small and Medium enterprises are expected to adapt quickly and must find ways to manage and improve performance, and overcome reluctance and resistance to change. Two of the emerging challenge of embracing wide and deep change at work is the adaption of strategic quality management and lean business method.

## **Background of the Study**

The business industry is considered as one of the largest and most dynamic industries in the economy and a major contributor to national economic growth and development. Entrepreneurial existence is just as relevant and important in various emerging sectors in modern economies and thus, the paradigm dimension of strategic management process and approach and Sustainable business growth is an important force behind the success of such. The absence of entrepreneurial dynamism, however, still makes long-term economic development a challenging task. Aside from the Philippines' diverse population, speaking more than 80 languages and dialects and spread over 7,000 islands in the Western Pacific, the country is said to be a flexible gateway for ASEAN Economic relations.

According to PricewaterhouseCoopers, a multinational professional services network headquartered in London, United Kingdom and the most prestigious accounting firm in the world, the Philippine economy is projected to be the 5th largest in Asia and 16th biggest in the world by 2050 and estimated to be the 12th to 14th richest economy in the world by 2060. Despite the challenging global economic environment, the Philippines has achieved notable economic expansion, driven by the economy's strong export performance and inflows of remittances that have bolstered private consumption.

### **Philippine MSME Sector: Characteristics and Contribution to the Economy**

Republic Act 9501 or the Magna Carta as shown in Table 1a for Micro, Small and Medium Enterprises defines the MSME sector as enterprises with an asset size (less land) of up to Php100M and employment size as establishments with less than 200 employees.

**Table 1: Classification of MSMEs in the Philippines**

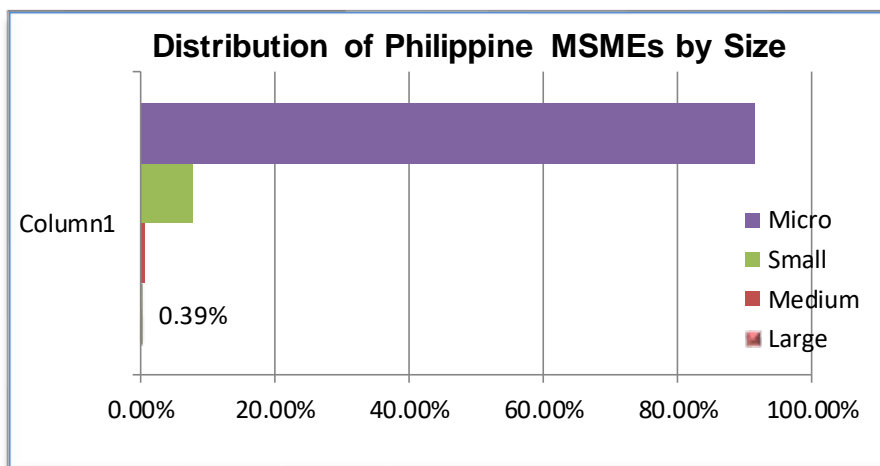
<i>Classification</i>	<i>Asset size (Php Million)</i>	<i>Number of Employees</i>
<i>Large</i>	<i>&gt;100</i>	<i>&gt;200</i>
<i>Medium</i>	<i>15.001-100</i>	<i>100-199</i>
<i>Small</i>	<i>3.001-15</i>	<i>10-99</i>
<i>Micro</i>	<i>≤3</i>	<i>1-9</i>

As Table 1 shows, the MSME sector is made up of about 826,680 MSMEs across the country in 2016. The bulk of enterprises (91.6%) are composed of micro enterprises. Small enterprises accounted for a share of around 7.7% while medium enterprises registered a very small share of less than 1% of the total (0.4%). Large enterprises had about the same share as medium enterprises (0.4%). With the very small proportion of medium sized enterprises, the country's structure has been characterized by a hollowed or missing middle.

In terms of geographic dispersion as shown in Figure 1, most MSMEs are located in Luzon (68%), followed by Mindanao (18%) and the Visayas (14%). Metro Manila hosts the most of MSMEs (26%) or about 40% of the total number in Luzon. Central Visayas which has 6% of the total MSMEs and the Davao Region with its 5 % share in total MSMEs have the highest number of MSMEs in the Visayas (42%) and Mindanao

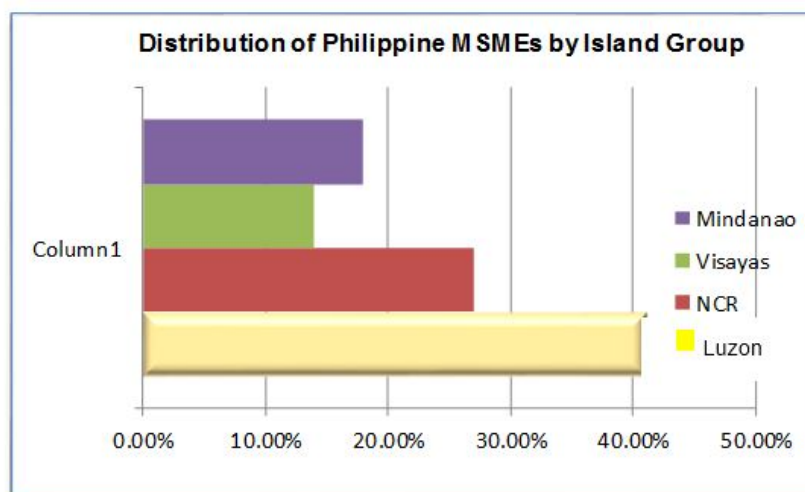
(27%), respectively.

**Figure 1: Distribution of Philippine MSMEs by Size**



Source: National Statistics Office, 2016

**Figure 2: Distribution of Philippine MSMEs by Island Group**



Source: National Statistics Office, 2016

Effective strategy development requires a systematic process that involves participation by all necessary stakeholders, ensures that relevant and important data and information are captured and analyzed, addresses both short- and long-term time horizons, addresses key strategic challenges, and leads to innovation and sustainability. It is significant to identify the organizations' strategic Challenges by determining the organization's core competencies, and understand how they relate to the mission, competitive environment, and strategic objectives, view the work performed within the organization as a system, make rational decisions about the mix of internal and external

work processes that can best achieve the organization's mission and lastly, identify those pressures that exert a decisive influence on an organization's likelihood of future success such as operational costs, expanding or decreasing markets, mergers or acquisitions both by the organization and by its competitors, economic conditions, the cyclical nature of the industry, the introduction of new or substitute products or services, rapid technological changes, new competitors entering the market.

## **2. RESEARCH OBJECTIVES**

The study investigated on the extent of Sustainability Transitions through Strategic Quality Management Predictors and Lean Business Practices of the Philippine Business Industry leading towards Company Performance Agility. Specifically, the study aimed to determine the personal and industry-related variables of the respondents in terms of Gender, Age, and number of years in the Industry Operation, Average number of Employees and nature of industry engaged with. At the same time, the study aims to assess current level of Business performance agility in terms of sales, level of profitability and market share across its classification and according to its business location. The study investigated how the Philippine business industry integrates business quality management principles with their lean business practices to contribute to company performance agility. The proponent determined the nature and extent of the Philippine business industry's strategic quality management and lean business practices in business in relation to the latent exogenous variables identified namely; customer focus, strategic leadership practices, employee engagement, process approach, system approach, continual improvement & innovation practices and mutually beneficial supplier relationships practices and at the same time, the strategy implementation of the enterprise-respondents in their daily business operations in terms of product and service value management, cost leadership, process utilization, procurement time management, enterprise resource management, and risk management as basis for their best practices leading towards competitive advantage.

## **3. LITERATURE REVIEW**

### **Strategic Quality Management in the 21<sup>st</sup> Century**

The history of Quality Management started from the ancient History of Zhou Dynasty in China to the age of Craftsmanship through skilled workers during the middle ages unto the Industrial Revolution. And continuously to evolve in the early 20<sup>th</sup> Century through the concepts and principles created by various management gurus aligning

strategic management approach into quality management, quality awareness, Performance Excellence, Focus on customer value, organizational sustainability improvement of effectiveness and capabilities, organizational and personal learning, the emergence of Six Sigma, a customer-focused, results-oriented approach to business improvement into the current and future challenges of applying principles of quality and performance excellence looking at quality as a race without a finish line. According to Bernik, Sondari and Indika (2017), one of the best ways to improve the quality of management along with the key success factors in the academic and non-academic institutions is by implementing Quality Management System. With the implementation of a model of Quality Management System ISO 9001: 2015, the quality management in academic and business enterprise will be continuously improved, and increase the competitiveness in the national and international level.

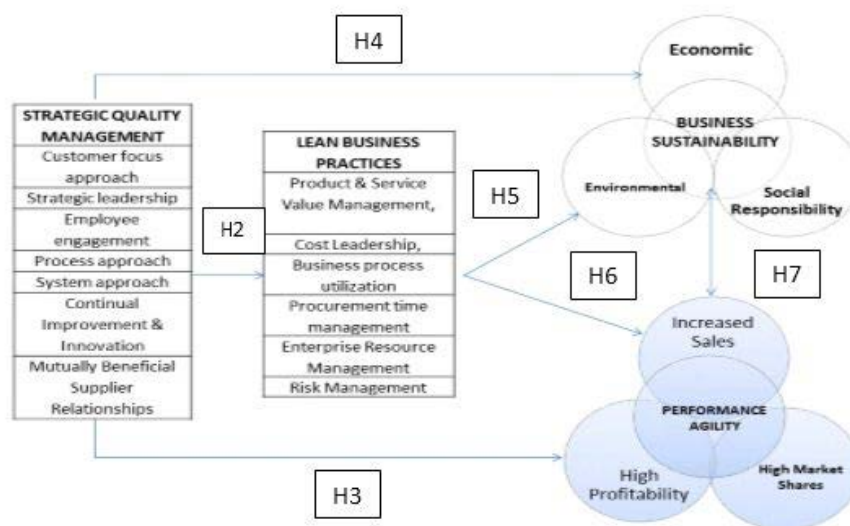
### **Agile versus Lean business method**

A traditional lean business model includes lean business practices like continuous improvement, total quality management, and just-in-time inventory systems. All three of these practices help companies to cut wasteful spending and increase quality and productivity. This only makes sense that companies that produce better quality products at cheaper prices with smaller shipping times will be more successful in the long run. A positive return from customers is the end goal of a lean business model. Agile methods have emerged largely from practice as a response to cumbersome managerial controls, which sought to address the so-called 'software crisis. According to Conboy (2016), lean business practices are seen by industry as potential solution to the 'soft' perception of agile methods. This presents new and different challenges for decision making, control, and the scaling of agile and lean. Business agility as defined by Huerell (2015) is people, product and market-centric. It paved way to create innovative solutions, improved work-in-process and maximizes business value. The core idea is to maximize customer value while minimizing waste at a fast speed of time. Simply, lean means creating more value for customers with fewer resources while maximizing and doing at the best of capacity. As companies started to turn more customer oriented they started to develop lean business practices or a lean business model. A lean business model is a business strategy that strives to eliminate waste in product and processes while satisfying customer wants. By satisfying customer wants, the business will receive more positive returns like increased sales and goodwill. This happened in the 1990s and 2000s in the automotive industry. Japanese companies dominated the American auto market because they adopted lean business models and became customer oriented. It took the better part of a decade for American auto companies to regain their lost market share.

## Research Framework

The framework of this study is an adaptation and modification of various models. The study is also framed within the firm growth theories of Murphy (1996), Resource-Based Views (RBV) of Barney (1991), competitive advantage concepts was developed by Miller (1983) as comprising three dimensions; innovativeness, pro-activeness and risk taking and the competitive advantage theory of Michael E. Porter (1985) in relation also with Miller (1983), Lumpkin, & Dess (1996), Kuratko and Hodgetts (2004) and Gurbuz & Aykol (2009) which characterize business performance agility as an attitudes towards business through lean practices such as Product and service differentiation, Cost leadership, Financial Planning & Budgeting, Financial Management and Risk Management. Another model adaptation is the quality management principles of ISO 9000:2000 utilizing 8 point principles of strategic quality management such as Customer Focus, Leadership, Involvement of People, Process Approach, System Approach to Management, Continual Improvement, Factual Approach to Decision Making and Mutually Beneficial Supplier Relationships.

## Conceptual Model and testing of Hypothesis Paradigm



**Fig. 3 Conceptual Model of Sustainable MSME and Hypothetical Paradigm**

Entrepreneurial Orientation (EO) represents the policies and practices that provide a basis for entrepreneurial decisions and actions and can be viewed as the entrepreneurial strategy-making processes that key decision makers use to enact their firm’s organizational purpose, sustain its vision, and create competitive advantage(s). Thus, conceptual arguments suggest that EO leads to higher and sustainable

performance from its salient dimensions which can be derived from a review and integration of the strategy and entrepreneurship literatures.

This study is conducted based on the following hypotheses:

**Ho 1:** There is no significant difference in the strategic quality management implementation and lean business practices of the Enterprise-respondents when grouped according to company profile.

**Ho 2:** There is no significant relationship between the extent of the enterprise-respondents' implementation of strategic quality management principles and Lean Business.

**Ho 3:** There is no significant relationship between the extent of the enterprise-respondents' implementation of strategic quality management principles and Business Performance.

**Ho 4:** There is no significant relationship between the extent of the enterprise-respondents' implementation of strategic quality management principles and Sustainability in Business.

**Ho 5:** There is no significant relationship between the extent of the enterprise-respondents' Lean Business practices and Business Performance.

**Ho 6:** There is no significant relationship between the extent of the enterprise-respondents' Lean Business practices and Entrepreneurial sustainability.

**Ho 7:** There is no significant relationship between the extent of the enterprise-respondents' non-financial business performance (sales, profitability and market share) and entrepreneurial Sustainability.

#### **4. RESEARCH METHODOLOGY**

##### **Research Design**

The proponent made use of Descriptive-Correlation and Descriptive-Comparative Method of quantitative research and employed stratified Sampling technique.

##### **Respondents of the Study**

According to National Statistic Office, there were approximately 830,000 business enterprises in the Philippines In 2012. Of these, 99.6 percent or 826,680 are classified as micro, small, and medium-sized enterprises (MSME). The study was pilot tested with a convenience sample to 30 international-based enterprise companies and administered to a stratified sample of 400 selected Enterprise-owner respondents in four major geographical areas in the Philippines across Luzon, NCR, Visayas and Mindanao Regions.



**Table 1b: Stratified Dispersion of MSMEs' geographical area category based from Slovin's Sampling Technique**

<i>Geographical Area</i>	<i>Total # of Establishment</i>	<i>Rate of Percentage</i>	<i>Slovin Conversion</i>
<i>Luzon</i>	<i>338,939</i>	<i>41%</i>	<i>164</i>
<i>NCR</i>	<i>223,204</i>	<i>27%</i>	<i>108</i>
<i>Visayas</i>	<i>115,735</i>	<i>14%</i>	<i>56</i>
<i>Mindanao</i>	<i>148,802</i>	<i>18%</i>	<i>72</i>
<b><i>Total</i></b>	<b><i>826,680</i></b>	<b><i>100</i></b>	<b><i>400</i></b>

## Research Instruments

This study made use of a researcher-made & modified questionnaire as the main data-gathering instrument. The part 1 of the questionnaire dealt with the personal related variables of the respondents in terms of age and gender. Business-related variables were also identified as to years engaged in the industry, type of industry and average number of employees and business performance as to their current level of sales, profitability and market share. This information will be found in Appendix A.

In Part 2, the second section consists of thirty (30) questions extracted under the 7 determining factors of assessing levels of strategic quality management implementation; twenty (20) questions under the 5 determining factors used to measure business lean practices and its influence on sustainable entrepreneurship indicated on a scale of 1-5 from “Strongly Agree” to “Strongly Disagree”. Thirty three (30) questions extracted under the 4 determining factors to assess perceptual level on business strategies affecting business growth indicated on a scale of 1-5 from “Strongly Considered Not Implemented” to “Strongly Considered Implemented”.

Furthermore, the survey questionnaire that will be used by the researcher in gathering primary data and information composed of different answers information from the respondents.

## Data Analysis

A statistical package was employed in data analysis and treatment using frequency count, percentage; mean, standard deviation, Chi-square, f- test, Split-type Bivariate ANOVA, Pearson product correlation and Multiple Regression for higher statistical

analysis according to the research objectives and hypotheses related to the relationships between the factors.

### 5. RESULTS AND DISCUSSIONS

Figure 1.4: Graphical distributions of Enterprise-respondents according to Business Location

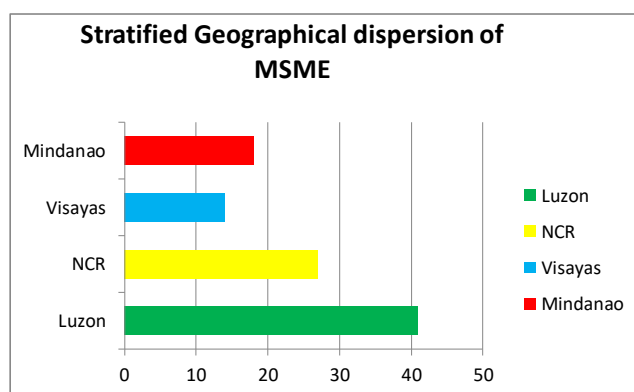


Figure 1.4 presents the frequency and percentage distribution of the respondents according to its business location. The result shows that the distribution is varied among the areas in the Philippines of which the largest group composed of 164 enterprise owner respondents are in Luzon area stands as 41 % which considered as the largest among all followed by 108 enterprise-owner respondents from NCR accounted as 27 %. Mindanao Area is on the third category with 72 respondents represented as 18% followed by Visayas region with 56 respondent’s equivalent to 14 %. This identifies the majority of MSME’s enterprise-owner respondents are in the strong evidence of owning and managing MSME industry and dispersed in Luzon and NCR regions

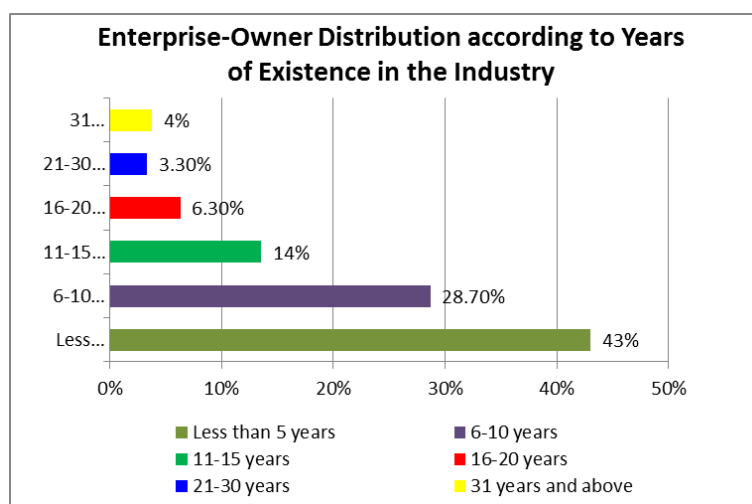


Figure 1.5 presents the tabular and graphical frequency and percentage distribution of the respondents according to number of years of business operation. The result shows that the distribution is varied with years ranging from less than 5 years to 31 years and above of existence in the industry. The largest group by years of business existence is lopsided towards operating those businesses operating in less than five years with 172 respondents or 43 percent followed business operation of 6-10 years with 115 company respondents or 28.7 percent. Business enterprise operating for 11-15 years is consists of 54 company respondents or 13.5 percent. Company operating for 16-20 years is on the fourth category with 25 company respondents or 6.3 percent while company with 31 years and above of existence are represented by 15 company respondents with 3.8 percent and the least is on the category of 21-30 years of operation with 13 company respondents or 3.3 percent. The result shows that the distribution on the number of years of operation is lopsided towards business existing for 5 years. This identifies that majority of the respondents are newly established businesses engaged in the business industry for less than 5 years now.

**Table 3.1 Analysis of Variance (ANOVA) of Business performance level as to sales, profitability and market share of the Enterprise-respondents when grouped according to classification as Micro, Small and Medium-sized Enterprise and geographical location.**

<i>Business Location</i>	<i>Classification</i>	<i>Business Performance Indicator</i>	<i>Mean</i>	<i>Composite Mean</i>	<i>f- value</i>	<i>Sig. value</i>	<i>Decision on Ho/ Interpretation</i>
<i>Luzon</i>	<i>Micro</i>	<i>Sales</i>	2.9794	3.0552	3.476	.018	<i>Reject HO/ Significant</i>
		<i>Profitability</i>	3.1031				
		<i>Market Share</i>	2.9175				
	<i>Small</i>	<i>Sales</i>	3.3333	3.4237			
		<i>Profitability</i>	3.3667				
		<i>Market Share</i>	3.5000				
	<i>Medium</i>	<i>Sales</i>	3.4000	3.4453			
		<i>Profitability</i>	3.3333				
		<i>Market Share</i>	3.4000				
<i>NCR</i>	<i>Micro</i>	<i>Sales</i>	3.2333	3.1602	2.524	.085	<i>Accept Ho/ Not Significant</i>
		<i>Profitability</i>	3.2333				
		<i>Market Share</i>	3.0833				
	<i>Small</i>	<i>Sales</i>	3.4667	3.4442			
		<i>Profitability</i>	3.6000				

		<i>Market Share</i>	3.2667				
	<i>Medium</i>	<i>Sales</i>	3.4286	3.5243			
		<i>Profitability</i>	3.8571				
		<i>Market Share</i>	3.2857				
<i>Visayas</i>	<i>Micro</i>	<i>Sales</i>	3.0732	3.1876	.751	.476	<i>Accept Ho/ Not Significant</i>
		<i>Profitability</i>	2.9756				
		<i>Market Share</i>	3.1786				
	<i>Small</i>	<i>Sales</i>	3.4667	3.4447			
		<i>Profitability</i>	3.5333				
		<i>Market Share</i>	3.2000				
	<i>Medium</i>	<i>Sales</i>	3.5000	3.5567			
		<i>Profitability</i>	3.6667				
		<i>Market Share</i>	4.5000				
<i>Mindanao</i>	<i>Micro</i>	<i>Sales</i>	3.1786	3.1131	7.670	.001	<i>Reject Ho/ Significant</i>
		<i>Profitability</i>	3.2321				
		<i>Market Share</i>	2.9286				
	<i>Small</i>	<i>Sales</i>	3.7826	3.6235			
		<i>Profitability</i>	3.6087				
		<i>Market Share</i>	3.4783				
	<i>Medium</i>	<i>Sales</i>	4.5000	4.5000			
		<i>Profitability</i>	4.5000				
		<i>Market Share</i>	4.5000				

Note: Significant at below .05

Using f-test and Analysis of Variance (ANOVA), table 3.1 shows the result of the test difference in the level of Business performance as to sales, profitability and market share of the Enterprise-respondents when grouped according to classification as Micro, Small and Medium-sized Enterprise and geographical location.

The test of difference on the level of business performance incurred from the MSME respondents in Luzon and Mindanao obtained an F-value of 3.476 and a significant value of .018 and F-value of 7.670 and significant value of .001 respectively, in which these significant levels are lower than the .05 level of significance and thus this means that there is a significant difference in the enterprise-respondents' level of business performance when it comes to sales, profitability and Market share. While MSME respondents in NCR and Visayas obtained an F-value of 2.524 and a significant value of .085 and F-value of .751 and significant value of .476 respectively, in which these significant levels are higher than the .05 level of significance and thus this means

that there is no significant difference in the enterprise-respondents' level of business performance when it comes to sales, profitability and Market share.

***Descriptive indicator of Strategic Quality Management, Lean Business Practices, Sustainability level and Business Performance when grouped according to Business Location and MSME Classification***

<b><i>MSME Classification</i></b>	<b><i>Bus. Variables'</i></b>	<b><i>Location</i></b>	<b><i>Mean</i></b>	<b><i>Interpretation</i></b>
<b><i>MICRO</i></b>	<b><i>NCR</i></b>	<i>Strategic Quality Mgt</i>	3.8167	<i>Agree</i>
		<i>Lean Practices</i>	3.8333	<i>Implemented</i>
		<i>Sustainability Level</i>	3.7833	<i>Agree</i>
		<i>Business Performance</i>	3.20	<i>Average level</i>
	<b><i>Luzon</i></b>	<i>Strategic Quality Mgt</i>	3.9381	<i>Agree</i>
		<i>Lean Practices</i>	3.8866	<i>Implemented</i>
		<i>Sustainability Level</i>	3.9278	<i>Agree</i>
		<i>Business Performance</i>	3.18	<i>Average level</i>
	<b><i>Visayas</i></b>	<i>Strategic Quality Mgt</i>	4.0244	<i>Agree</i>
		<i>Lean Practices</i>	3.8780	<i>.Implemented</i>
		<i>Sustainability Level</i>	3.9268	<i>Agree</i>
		<i>Business Performance</i>	3.05	<i>Average level</i>
<b><i>Mindanao</i></b>	<i>Strategic Quality Mgt</i>	3.9107	<i>Agree</i>	
	<i>Lean Practices</i>	3.8214	<i>Implemented</i>	
	<i>Sustainability Level</i>	3.7321	<i>Agree</i>	
	<i>Business Performance</i>	3.22	<i>Average level</i>	
<b><i>SMALL</i></b>	<b><i>NCR</i></b>	<i>Strategic Quality Mgt</i>	3.9778	<i>Agree</i>
		<i>Lean Practices</i>	3.8889	<i>Implemented</i>
		<i>Sustainability Level</i>	4.0444	<i>Agree</i>
		<i>Business Performance</i>	3.36	<i>Average level</i>
	<b><i>Luzon</i></b>	<i>Strategic Quality Mgt</i>	3.6000	<i>Agree</i>
		<i>Lean Practices</i>	3.7000	<i>Implemented</i>
		<i>Sustainability Level</i>	3.7000	<i>Agree</i>
		<i>Business Performance</i>	3.13	<i>Average level</i>
	<b><i>Visayas</i></b>	<i>Strategic Quality Mgt</i>	3.9333	<i>Agree</i>
		<i>Lean Practices</i>	4.0000	<i>Implemented</i>
		<i>Sustainability Level</i>	4.0000	<i>Agree</i>
		<i>Business Performance</i>	3.33	<i>Average level</i>
<b><i>Mindanao</i></b>	<i>Strategic Quality Mgt</i>	3.9130	<i>Agree</i>	
	<i>Lean Practices</i>	3.9130	<i>Implemented</i>	

<b>MEDIUM</b>	<b>NCR</b>	<i>Sustainability Level</i>	4.0000	Agree	
		<i>Business Performance</i>	3.52	Average level	
		<i>Strategic Quality Mgt</i>	4.0000	Agree	
	<b>Luzon</b>	<i>Lean Practices</i>	4.1429	Implemented	
		<i>Sustainability Level</i>	4.0000	Agree	
		<i>Business Performance</i>	3.29	Average level	
	<b>Visayas</b>	<i>Strategic Quality Mgt</i>	4.2667	Agree	
		<i>Lean Practices</i>	4.1333	Implemented	
		<i>Sustainability Level</i>	4.1333	Agree	
	<b>Mindanao</b>	<i>Business Performance</i>	3.20	Average level	
		<i>Strategic Quality Mgt</i>	3.6667	Agree	
		<i>Lean Practices</i>	3.8333	Implemented	
			<i>Sustainability Level</i>	4.1667	Agree
			<i>Business Performance</i>	3.50	Average level
			<i>Strategic Quality Mgt</i>	5.0000	Strongly Agree
		<i>Lean Practices</i>	5.0000	Strongly Implemented	
		<i>Sustainability Level</i>	5.0000	Strongly Agree	
		<i>Business Performance</i>	3.50	Average level	

a. Legend: 4.50 – 5.0 Strongly Agree, 3.50 – 4.49 Agree, 2.50 – 3.49 Neutral, 1.50 – 1.50-2.49 Disagree, .50-1.49 Strongly Disagree

b. Legend: 4.50 – 5.0 Strongly Implemented, 3.50 – 4.49 Implemented, 2.50 – 3.49 Moderately Implemented, 1.50 – 1.50-2.49 Slightly Implemented, .50-1.49 Not Implemented

c. Legend 3: 4.5– 5.0 High Level, 3.5 – 4.49 Increasing Level, 2.50 – 3.49 Average level, 1.50 – 1.50-2.49 Decreasing Level, .50-1.49 Low Level

**Analysis of Variance (ANOVA) on Strategic Quality Management, Lean Business Practices, Sustainability level of MSME in the Philippines**

<i>Business Location</i>	<i>Indicator</i>	<i>Classification</i>	<i>f- value</i>	<i>Sig. value</i>	<i>Decision on Ho/ Interpretation</i>
<i>Luzon</i>	<i>SQM</i>	<i>Micro</i>	3.846	.011	<i>Reject Ho/ Significant</i>
		<i>Small</i>			
		<i>Medium</i>			
	<i>LBP</i>	<i>Micro</i>	2.676	.050	<i>Reject Ho/</i>
<i>Small</i>					

		<i>Medium</i>			<i>Significant</i>
	<i>ES</i>	<i>Micro</i>	2.974	.034	<i>Reject Ho/ Significant</i>
		<i>Small</i>			
		<i>Medium</i>			
<i>NCR</i>	<i>SQM</i>	<i>Micro</i>	.622	.539	<i>Accept Ho/ Not Significant</i>
		<i>Small</i>			
		<i>Medium</i>			
	<i>LBP</i>	<i>Micro</i>	.675	.511	<i>Accept Ho/ Not Significant</i>
		<i>Small</i>			
		<i>Medium</i>			
	<i>ES</i>	<i>Micro</i>	1.773	.175	<i>Accept Ho/ Not Significant</i>
		<i>Small</i>			
		<i>Medium</i>			
<i>Visayas</i>	<i>SQM</i>	<i>Micro</i>	.496	.612	<i>Accept Ho/ Not Significant</i>
		<i>Small</i>			
		<i>Medium</i>			
	<i>LBP</i>	<i>Micro</i>	.147	.863	<i>Accept Ho/ Not Significant</i>
		<i>Small</i>			
		<i>Medium</i>			
	<i>ES</i>	<i>Micro</i>	.252	.778	<i>Accept Ho/ Not Significant</i>
		<i>Small</i>			
		<i>Medium</i>			
<i>Mindana o</i>	<i>SQM</i>	<i>Micro</i>	3.418	.038	<i>Reject Ho/ Significant</i>
		<i>Small</i>			
		<i>Medium</i>			
	<i>LBP</i>	<i>Micro</i>	4.421	.015	<i>Reject Ho/ Significant</i>
		<i>Small</i>			
		<i>Medium</i>			
	<i>ES</i>	<i>Micro</i>	4.949	.009	<i>Reject Ho/ Significant</i>
		<i>Small</i>			
		<i>Medium</i>			

*Note: Significant at below 0.05 Level*

*Predictors: SQM (Strategic Quality Management), LBP (Lean Business Practices), ES (Entrepreneurial Sustainability)*

Using f-test and Analysis of Variance (ANOVA), table 3.1 shows the result of the test difference of the predictors used in the study mainly, (SQM) Strategic Quality

Management, (LBP) Lean Business Practices and (ES) Entrepreneurial Sustainability of the Enterprise-respondents when grouped according to classification as Micro, Small and Medium-sized Enterprise and its geographical dispersion.

The test of difference on the level of Strategic Quality Management incurred by the MSME respondents in Luzon and Mindanao obtained an F-value of 3.846 and a significant value of .011 and F-value of 3.418 and significant value of .038 respectively, in which these significant levels are lower than the .05 level of significance and thus this means that there is a significant difference in the enterprise-respondents' level of Strategic Quality Management implementation. While MSME respondents in NCR and Visayas obtained an F-value of .622 and a significant value of .539 and F-value of .496 and significant value of .612 respectively, in which these significant levels are higher than the .05 level of significance and thus this means that there is no significant difference in the enterprise-respondents' level Strategic Quality Management implementation.

The test of difference on the level of Lean Business Practices incurred by the MSME respondents in Luzon and Mindanao obtained an F-value of 2.616 and a significant value of .050 and F-value of 4.421 and significant value of .015 respectively, in which these significant levels are lower than the .05 level of significance and thus this means that there is a significant difference in the enterprise-respondents' Lean Business Practices. While MSME respondents in NCR and Visayas obtained an F-value of .675 and a significant value of .511 and F-value of .147 and significant value of .863 respectively, in which these significant levels are higher than the .05 level of significance and thus this means that there is no significant difference in the enterprise-respondents' Lean Business Practices.

The test of difference on the level of Entrepreneurial Sustainability incurred by the MSME respondents in Luzon and Mindanao obtained an F-value of 2.974 and a significant value of .034 and F-value of 4.949 and significant value of .009 respectively, in which these significant levels are lower than the .05 level of significance and thus this means that there is a significant difference in the enterprise-respondents' Entrepreneurial Sustainability. While MSME respondents in NCR and Visayas obtained an F-value of 1.773 and a significant value of .175 and F-value of .252 and significant value of .778 respectively, in which these significant levels are higher than the .05 level of significance and thus this means that there is no significant difference in the enterprise-respondents' Entrepreneurial Sustainability.



**Correlations between Strategic Quality Management, Lean Business Practices, Entrepreneurial Sustainability and Business Performance when group according to Business Location**

<i>Business Classification</i>	<i>Correlation between Variables</i>	<i>r-value</i>	<i>p-value</i>	<i>Interpretation</i>	
<b>NCR</b>	<i>Strategic Quality Mgt-Lean Business Practices</i>	.786	.000	High Relationship/Significant	
	<i>Strategic Quality Mgt-Business Sustainability</i>	.705	.000	High Relationship/Significant	
	<i>Strategic Quality Mgt-Business Performance</i>	.201	.822	Slight Relationship/ Not Significant	
	<i>Lean Business Practices-Entrepreneurial Sustainability</i>	.743	.000	High Relationship/Significant	
	<i>Lean Business Practices-Business Performance</i>	.117	.219	Slight Relationship/Not Significant	
	<i>Entrepreneurial Sustainability-Business Performance</i>	.093	.325	Slight Relationship/Not Significant	
	<b>LUZON</b>	<i>Strategic Quality Mgt-Lean Business Practices</i>	.849	.000	High Relationship/Significant
		<i>Strategic Quality Mgt-Business Sustainability</i>	.783	.000	High Relationship/Significant
<i>Strategic Quality Mgt-Business Performance</i>		.055	.513	Slight Relationship/Not Significant	
<i>Lean Business Practices-Entrepreneurial Sustainability</i>		.842	.000	High Relationship/Significant	
<i>Lean Business Practices-Business Performance</i>		.066	.430	Slight Relationship/Not Significant	

	<i>Entrepreneurial Sustainability-Business Performance</i>	-.005	.954	<i>No Relationship/Not Significant</i>
	<i>Strategic Quality Mgt-Lean Business Practices</i>	.782	.000	<i>High Relationship/Significant</i>
	<i>Strategic Quality Mgt-Business Sustainability</i>	.751	.000	<i>High Relationship/Significant</i>
	<i>Strategic Quality Mgt-Business Performance</i>	.203	.114	<i>Slight Relationship/Not Significant</i>
<b>VISAYAS</b>	<i>Lean Business Practices-Entrepreneurial Sustainability</i>	.745	.000	<i>High Relationship/Significant</i>
	<i>Lean Business Practices-Business Performance</i>	.134	.299	<i>Slight Relationship/Not Significant</i>
	<i>Entrepreneurial Sustainability-Business Performance</i>	.328	.009	<i>Slight Relationship/Not Significant</i>
	<i>Strategic Quality Mgt-Lean Business Practices</i>	.447	.000	<i>Moderate Relationship/Significant</i>
	<i>Strategic Quality Mgt-Business Sustainability</i>	.291	.008	<i>Slight Relationship/Not Significant</i>
<b>MINDANAO</b>	<i>Strategic Quality Mgt-Business Performance</i>	-.044	.695	<i>No Relationship/Not Significant</i>
	<i>Lean Business Practices-Entrepreneurial Sustainability</i>	.667	.000	<i>Moderate Relationship/Significant</i>
	<i>Lean Business Practices-Business Performance</i>	-.034	.766	<i>No Relationship/Not Significant</i>
	<i>Entrepreneurial Sustainability-Business Performance</i>	.094	.405	<i>Slight Relationship/Not Significant</i>

*Performance*

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*\*\*.* Correlation is significant at the 0.01 level (2-tailed),  $n=400$  Legend: 1.00 Perfect Relationship, 0.71-0.99 High Relationship, 0.41-0.70 Moderate Relationship, 0.01-0.41 Slight Relationship, 0.00 No Relationship

Table 6.1 shows the correlations between the enterprise-respondents' Strategic Quality Management, Lean Business Practices, Entrepreneurial Sustainability and Business Performance when group according to Business Location. Using 2-tailed Pearson Correlation, NCR-MSMEs' implementation of SQM has high influence on lean business practices from an obtained r-value of .786 and significant value of .000 as well as high relationship its sustainability in business from an obtained r value of .192 and significant value of .002. While the Lean business practices of MSME in NCR has high influence on their entrepreneurial sustainability from an obtained r- value of .743 and significant value of .000. MSMEs' lean business practices and strategic quality management implementation have a slight relationship and not significant with business performance from an obtained r value of .201 and significant value of .822 and r value of .117 and significant value of .219 respectively while entrepreneurial sustainability has no significant relationship with business performance from an obtained r value .093 of and significant value of .325 respectively but exhibit high relationship with entrepreneurial sustainability evident an obtained r value of .705 and significant value of .000.

Luzon-MSMEs' implementation of SQM has high influence on lean business practices from an obtained r value of .849 and significant value of .000 as well as high relationship with its sustainability in business from an obtained r value of .783 and significant value of .000 and exhibit high relationship with entrepreneurial sustainability which became evident from an obtained r value of .842 and significant value of .000. While the Lean business practices of MSME in Luzon has high influence on their entrepreneurial sustainability from an obtained r- value of .842 and significant value of .000. MSMEs' strategic quality management implementation and lean business practices have a slight relationship and not significant with business performance from an obtained r value of .055 and significant value of .513 and r value of .066 and significant value of .430 respectively while entrepreneurial sustainability has no significant relationship with business performance from an obtained r value -.005 of and significant value of .954 respectively.

Visayas-MSMEs' implementation of SQM has high influence on lean business practices from an obtained r value of .782 and significant value of .000 as well as high relationship with its sustainability in business from an obtained r value of .751 and significant value of .000 and vice versa entrepreneurial sustainability has high

significant relationship with business performance from an obtained r value .328 of and significant value of .954. While the Lean business practices of MSME in Visayas has high influence on their entrepreneurial sustainability from an obtained r- value of .745 and significant value of .000. MSMEs' strategic quality management implementation and lean business practices have a slight relationship and not significant with business performance from an obtained r value of .203 and significant value of .114 and r value of .134 and significant value of .299 respectively.

Mindanao-MSMEs' implementation of SQM has moderate influence on lean business practices from an obtained r value of .447 and significant value of .000 as well as lean business practices has moderate relationship with its sustainability in business from an obtained r value of .667 and significant value of .000. SQM has slight and significant relationship with business sustainability from an obtained r value of .291 and significant value of .008. Entrepreneurial sustainability has slight and no significant relationship with business performance from an obtained r value .094 of and significant value of .405. While the Lean business practices and SQM of MSME in Visayas has no influence on their business performance from an obtained r- value of -.044 and significant value of .695 and r value of -.034 and significant value of .766 respectively.

**Table 6.2 Correlations between Strategic Quality Management, Lean Business Practices, Entrepreneurial Sustainability and Business Performance when group according to classification as MSME.**

<i>Business Classification</i>	<i>Correlation</i>	<i>r-value</i>	<i>p-value</i>	<i>Interpretation</i>
<b>MICRO</b>	<i>Strategic Quality Mgt-Lean Business Practices</i>	.707	.000	High Relationship/Significant
	<i>Strategic Quality Mgt-Business Sustainability</i>	.656	.000	Moderate Relationship/Significant
	<i>Strategic Quality Mgt-Business Performance</i>	.043	.049	Slight Relationship/ Not Significant
	<i>Lean Business Practices-Entrepreneurial Sustainability</i>	.750	.000	High Relationship/Significant
	<i>Lean Business Practices-Business</i>	.043	.479	Slight Relationship/Not Significant

	<i>Performance</i>			
	<i>Entrepreneurial</i>	.050	.431	<i>Slight Relationship/Not</i>
	<i>Sustainability-Business</i>			<i>Significant</i>
	<i>Performance</i>			
	<i>Strategic Quality</i>	.737	.000	<i>High</i>
	<i>Mgt-Lean Business</i>			<i>Relationship/Significant</i>
	<i>Practices</i>			
	<i>Strategic Quality</i>	.611	.000	<i>Moderate</i>
	<i>Mgt-Business</i>			<i>Relationship/Significant</i>
	<i>Sustainability</i>			
	<i>Strategic Quality</i>	.066	.486	<i>Slight Relationship/Not</i>
	<i>Mgt-Business</i>			<i>Significant</i>
<b>SMALL</b>	<i>Performance</i>			
	<i>Lean Business</i>	.690	.000	<i>Moderate</i>
	<i>Practices-Entrepreneurial</i>			<i>Relationship/Significant</i>
	<i>Sustainability</i>			
	<i>Lean Business</i>	.090	.344	<i>Slight Relationship/Not</i>
	<i>Practices-Business</i>			<i>Significant</i>
	<i>Performance</i>			
	<i>Entrepreneurial</i>	.167	.077	<i>Slight Relationship/Not</i>
	<i>Sustainability-Business</i>			<i>Significant</i>
	<i>Performance</i>			
	<i>Strategic Quality</i>	.958	.000	<i>High</i>
	<i>Mgt-Lean Business</i>			<i>Relationship/Significant</i>
	<i>Practices</i>			
	<i>Strategic Quality</i>	.879	.000	<i>High</i>
	<i>Mgt-Business</i>			<i>Relationship/Significant</i>
	<i>Sustainability</i>			
	<i>Strategic Quality</i>	.172	.364	<i>Slight Relationship/Not</i>
<b>MEDIUM</b>	<i>Mgt-Business</i>			<i>Significant</i>
	<i>Performance</i>			
	<i>Lean Business</i>	.946	.000	<i>High Relationship/</i>
	<i>Practices-Entrepreneurial</i>			<i>Significant</i>
	<i>Sustainability</i>			
	<i>Lean Business</i>	.217	.249	<i>Slight Relationship/Not</i>
	<i>Practices-Business</i>			<i>Significant</i>
	<i>Performance</i>			
	<i>Entrepreneurial</i>	.168	.375	<i>Slight Relationship/Not</i>

*Sustainability-Business  
Performance*

*Significant*

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\*\* . Correlation is significant at the 0.01 level (2-tailed), n=400 Legend: 1.00 Perfect Relationship, 0.71-0.99 High Relationship, 0.41-0.70 Moderate Relationship, 0.01-0.41 Slight Relationship, 0.00 No Relationship

Table 6.2 shows the correlations between the enterprise-respondents' Strategic Quality Management, Lean Business Practices, Entrepreneurial Sustainability and Business Performance when group according to Business Location. Using 2-tailed Pearson Correlation, NCR-MSMEs' implementation of SQM has high influence on lean business practices from an obtained r-value of .786 and significant value of .000 as well as high relationship its sustainability in business from an obtained r value of .192 and significant value of .002. While the Lean business practices of MSME in NCR has high influence on their entrepreneurial sustainability from an obtained r- value of .743 and significant value of .000. MSMEs' lean business practices and strategic quality management implementation have a slight relationship and not significant with business performance from an obtained r value of .201 and significant value of .822 and r value of .117 and significant value of .219 respectively while entrepreneurial sustainability has no significant relationship with business performance from an obtained r value .093 of and significant value of .325 respectively but exhibit high relationship with entrepreneurial sustainability evident an obtained r value of .705 and significant value of .000.

Luzon-MSMEs' implementation of SQM has high influence on lean business practices from an obtained r value of .849 and significant value of .000 as well as high relationship with its sustainability in business from an obtained r value of .783 and significant value of .000 and exhibit high relationship with entrepreneurial sustainability which became evident from an obtained r value of .842 and significant value of .000. While the Lean business practices of MSME in Luzon has high influence on their entrepreneurial sustainability from an obtained r- value of .842 and significant value of .000. MSMEs' strategic quality management implementation and lean business practices have a slight relationship and not significant with business performance from an obtained r value of .055 and significant value of .513 and r value of .066 and significant value of .430 respectively while entrepreneurial sustainability has no significant relationship with business performance from an obtained r value -.005 of and significant value of .954 respectively.

Visayas-MSMEs' implementation of SQM has high influence on lean business practices from an obtained r value of .782 and significant value of .000 as well as high relationship with its sustainability in business from an obtained r value of .751 and

significant value of .000 and vice versa entrepreneurial sustainability has high significant relationship with business performance from an obtained r value .328 of and significant value of .954. While the Lean business practices of MSME in Visayas has high influence on their entrepreneurial sustainability from an obtained r- value of .745 and significant value of .000. MSMEs' strategic quality management implementation and lean business practices have a slight relationship and not significant with business performance from an obtained r value of .203 and significant value of .114 and r value of .134 and significant value of .299 respectively.

Mindanao-MSMEs' implementation of SQM has moderate influence on lean business practices from an obtained r value of .447 and significant value of .000 as well as lean business practices has moderate relationship with its sustainability in business from an obtained r value of .667 and significant value of .000. SQM has slight and significant relationship with business sustainability from an obtained r value of .291 and significant value of .008. Entrepreneurial sustainability has slight and no significant relationship with business performance from an obtained r value .094 of and significant value of .405. While the Lean business practices and SQM of MSME in Visayas has no influence on their business performance from an obtained r- value of -.044 and significant value of .695 and r value of -.034 and significant value of .766 respectively.

**Table 6.3 Over-all Correlations between Strategic Quality Management, Lean Business Practices, Entrepreneurial Sustainability and Business Performance**

<i>Relationship between</i>		<i>r-value</i>	<i>p-value</i>	<i>Interpretation</i>
<i>Strategic Quality Mgt</i>	<i>Lean Business Practices</i>	.722	.000	<i>High Relationship/Significant</i>
<i>Strategic Quality Mgt</i>	<i>Business Sustainability</i>	.689	.000	<i>Moderate Relationship/Significant</i>
<i>Strategic Quality Mgt</i>	<i>Business Performance</i>	.060	.234	<i>Slight Relationship/Not Significant</i>
<i>Lean Business Practices</i>	<i>Entrepreneurial Sustainability</i>	.777	.000	<i>High Relationship/Significant</i>
<i>Lean Business Practices</i>	<i>Business Performance</i>	.075	.136	<i>Slight Relationship/Not Significant</i>
<i>Entrepreneurial Sustainability</i>	<i>Business Performance</i>	.100	.045	<i>Slight Relationship/Not Significant</i>

\*\**. Correlation is significant at the 0.01 level (2-tailed), n=400 Legend: 1.00 Perfect Relationship, 0.71-0.99 High Relationship, 0.41-0.70 Moderate Relationship, 0.01-0.41 Slight Relationship, 0.00 No Relationship*

Table 6.3 shows Pearson Product Correlation with 0.01 level of significance set for the study from the observed sample size. Significant high relationship was incurred between strategic quality management and lean business practices from an obtained  $r$  value of .722 and significant value of .000 and moderate relationship with entrepreneurial sustainability with  $r$  value of .689 and significant value of .000 and showed slight relationship but not significant on business performance with  $r$  value of .060 and significant value of .234.

Lean business practices exhibited high relationship with entrepreneurial sustainability from an  $r$  value of .777 and significant value of .000 and slight relationship but not significant with business performance from an  $r$  value of .075 and significant value of .136. Entrepreneurial sustainability showed slight relationship but not significant with business performance from an obtained  $r$  value of .100 and significant value of .045.

Thus, the results revealed that a positive implementation of strategic quality management principles in business operation towards customer focus, strategic leadership practices, employee engagement, process approach, system approach, Continual Improvement & Innovation Practices and Mutually Beneficial Supplier Relationships significantly highly influence Lean business strategies that when implemented in terms of Product and service value management, Cost Leadership, Process Utilization, Procurement Time Management, Enterprise Resource Management, and Risk Management Product will lead into a sustainable means of business operation. Furthermore, pursuing an agile means of business performance is significantly relevant to implementation of strategic quality management, lean business practices and entrepreneurial sustainability.

### ***Multiple Regression Analysis of Industry Profile predicting Business Performance Agility***

Table 7.1 and figure 7.1 to 7.2 shows the result of Multivariate regression analysis on Business performance as to sales, profitability and market share of the Enterprise-respondents when grouped according to Industry profile. Table 7.1 shows the result of multiple regression analysis on the criterion value of business performance agility accounted from the predictors of industry profile in business of the MSME company respondents. Business performance is highly attributed from the classification of business organization as micro, small or medium enterprise which accounted for twenty three percent or (23 %). Seven percent or (7 %) are attributed from the type of business ownership and years of existence in the industry respectively and Six percent



(6.1 %) increase of performance agility are attributed from the positive implementation of strategic quality management towards customer focus, strategic leadership practices, employee engagement, process approach, system approach, Continual Improvement & Innovation Practices and Mutually Beneficial Supplier Relationship and the least predictors are attributed from Lean practices in business and type of business organization. The data obtained an r value of .306, r square value of .094, adjusted r square value of .077 and significant value of .000 which revealed that 9.4 % of the variation of performance agility criterion can be explained by the industry profile according to number of employees, years of existence, type of business organization, business ownership, implementation of strategic quality management and lean business practices employed in business. Overall, the regression model is statistically significantly predicts the outcome variable. And hence, increases of business performance agility are attributed highly from the classification of business organization as micro, small or medium enterprise and the type of business ownership they have.

**Table 7.1: Tabular Regression Analysis of Industry Profile predicting Business Performance**

<i>Predictors of Business Performance</i>	<i>Unstandardized Coefficients</i>		<i>Standardized Coefficients</i>	<i>t</i>	<i>Sig.</i>
	<i>B</i>	<i>Std. Error</i>	<i>Beta</i>		
<i>(Constant)</i>	2.322	.227		10.216	.000
<i>STRATEGIC QUALITY MGT</i>	.061	.070	.067	.872	.384
<i>LEAN PRACTICES</i>	.006	.075	.007	.085	.932
<i>Business Location</i>	.018	.033	.027	.556	.579
<i>Years in the Industry</i>	.070	.027	.126	2.561	.011
<i>Types of Bus. Organization</i>	.028	.047	.032	.594	.553
<i>Types of Bus. Ownership</i>	.066	.036	.094	1.831	.068
<i>Ave. No. of Employees</i>	.230	.059	.204	3.867	.000

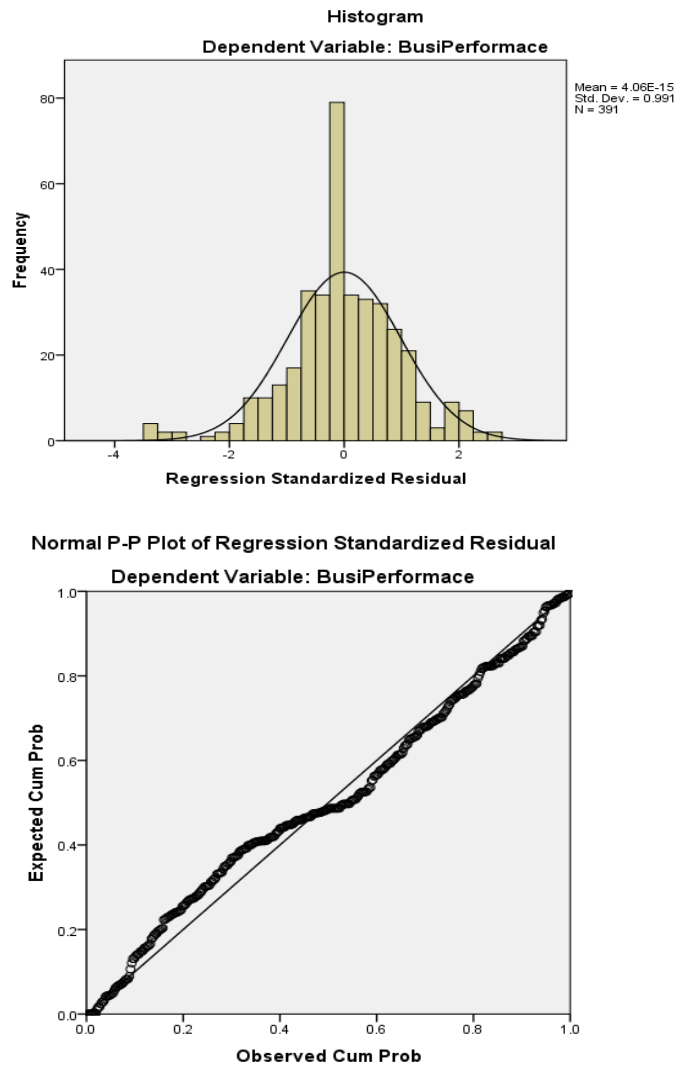
a. Dependent Variable: Business Performance

b. Predictors: (Constant), SQM, LBP, Industry Engaged, Types of Bus. Ownership, Years in the Industry, Bus. Location, Types of Bus. Organization, Ave. No. of Employees

**R: .306<sup>a</sup>**  
**R<sup>2</sup>: .094**  
**Adjusted R<sup>2</sup>: .077**

**F-value: 5.654**  
**Sig. Value: .000 (Significant)**

**Figure 7.1: Graphical Regression Analysis of Industry Profile predicting Business Performance**



**Multiple Regression Analysis of Industry Profile predicting Entrepreneurial Sustainability**

Table 8.1 and figure 8.1 shows the result of the Multivariate regression analysis of Industry Profile predicting Entrepreneurial Sustainability.

**Table 8.1: Tabular Regression Analysis of Industry Profile predicting Entrepreneurial Sustainability**

**Figure 8.1: Graphical Regression Analysis of Industry Profile predicting Business Sustainability**

<i>Model</i>	<i>Unstandardized Coefficients</i>		<i>Standardized Coefficients</i>	<i>t</i>	<i>Sig.</i>
	<i>B</i>	<i>Std. Error</i>	<i>Beta</i>		
<i>STRATEGIC QUALITY MGT</i>	.204	.046	.216	4.428	.000
<i>LEAN PRACTICES</i>	.626	.049	.617	12.656	.000
<i>Business Location</i>	-.012	.022	-.017	-.563	.574
<i>Years in the Industry</i>	-.008	.018	-.013	-.421	.674
<i>Types of Bus. Organization</i>	.017	.031	.019	.553	.580
<i>Types of Bus. Ownership</i>	.009	.024	.012	.380	.704
<i>Ave. No. of Employees</i>	.046	.039	.039	1.176	.240

a. Dependent Variable: Business Sustainability

b. Predictors: (Constant), SQM, LBP, Industry Engaged, Types of Bus. Ownership, Years in the Industry, Business Location, Types of Bus. Organization, Ave. No. of Employees

**R:** .800<sup>a</sup>  
**R2:** .639  
**Adjusted R2:** .633  
**F-value:** 96.952  
**Sig. Value:** .000 (Significant)

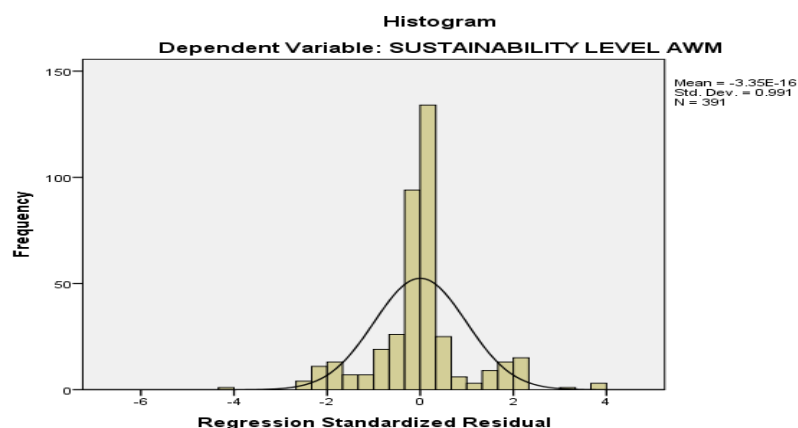


Table 8.1 shows the result of multiple regression analysis on the criterion value of sustainable means of business operation accounted from the predictors of Strategic quality management implementation, Lean business practices and industry profile in business of the MSME company respondents. Entrepreneurial sustainability is highly attributed from Lean business practices.

In terms of Product and service value management, Cost Leadership, Process Utilization, Procurement Time Management, Enterprise Resource Management, and Risk Management which accounted for Sixty three percent or (63 %) while twenty percent or (20.4 %) are attributed from the implementation of strategic quality management on customer focus, strategic leadership practices, employee engagement, process approach, system approach, Continual Improvement & Innovation Practices and Mutually Beneficial Supplier Relationships. The type of business organization, business ownership and classification as MSME are slightly associated with business sustainability.

And hence, business sustainability are not affected at all whether they are located in Luzon, Visayas, Mindanao and in NCR region or in their period of existence in the business industry. The data obtained an  $r$  value of .800,  $r$  square value of .639, adjusted  $r$  square value of .633 and significant value of .000 which revealed that 64 % of the variation of business sustainability criterion can be explained by the implementation of strategic quality management and lean business practices employed in business. Sustainable means of operation are highly attributed from SQM implementation Lean business practices. Overall, the regression model are statistically significantly predicts the outcome variable.

### ***Multiple Regression Analysis of Industry Profile predicting Strategic Quality Management Implementation***

Table 9.1 and figure 9.1 shows the result of the Multiple Regression Analysis of Industry Profile predicting Strategic Quality Management Implementation

**Table 9.1: Tabular Regression Analysis of Industry Profile predicting Strategic Quality Management Implementation**

Predictors of <i>Strategic Quality Management Implementation</i>	Unstandardized Coefficients		Standardized Coefficient	t	Sig.
	B	Std. Error	Beta		
(Constant)	3.719	.185		20.128	.000
Busi. Location	.016	.037	.022	.432	.666
Years in the Industry	.044	.031	.073	1.440	.151
Types of Bus. Organization	-.030	.054	-.030	-.552	.581
Types of Bus. Ownership	.103	.041	.133	2.530	.012
Ave. No. of Employees	-.016	.068	-.013	-.229	.819
Industry Engaged	-.006	.014	-.022	-.432	.666

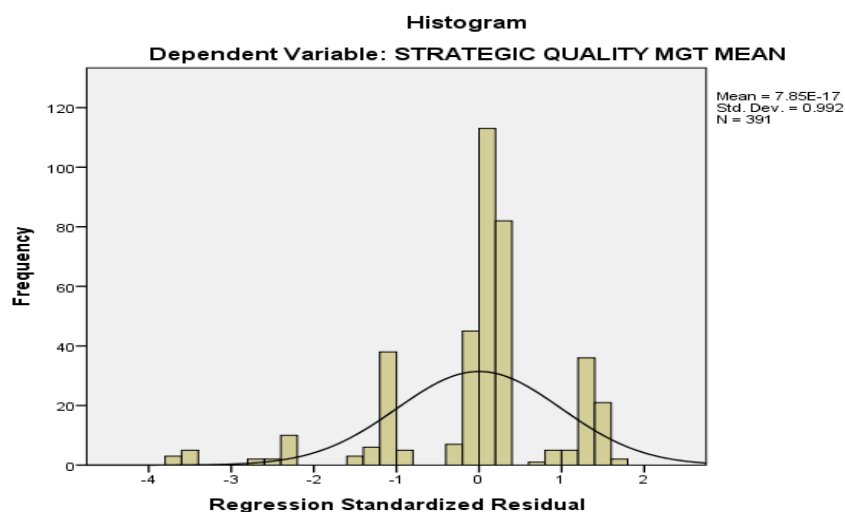
a. Dependent Variable: STRATEGIC QUALITY MGT

b. Predictors: (Constant), Industry Engaged, Types of Bus. Ownership, Years in the Industry, Busi. Location, Types of Bus. Organization, Ave. No. of Employees

<b>R:</b>	<b>.149<sup>a</sup></b>
<b>R<sup>2</sup>:</b>	<b>.022</b>
<b>Adjusted R<sup>2</sup>:</b>	<b>.007</b>
<b>Sig. Value:</b>	<b>.000 (Significant)</b>

Table 9.1 shows the result of multiple regression analysis on the criterion value of SQM implementation in business accounted from the predictors of industry profile of the MSME company respondents. Ten percent (10 %), five percent (5 %) and two percent (2 %) of SQM are attributed from the Type of business organization, years of existence in the industry and business location respectively. And hence, SQM implementation is not accounted from the number of employees they have, types of business organization and industry engaged with.

**Figure 9.1: Graphical Regression Analysis of Industry Profile predicting Strategic Quality Management Implementation**



The data obtained an r value of .149, r square value of .022, adjusted r square value of .007 and significant value of .000 which revealed that only 2.2 % of the variation of SQM criterion can be explained by the industry profile according to number of employees, years of existence, type of business organization and business ownership. Overall, the regression model are statistically significantly predicts the outcome variable.

**Multiple Regression Analysis of Industry Profile predicting Business Lean Practices**

Table 10.1 and figure 10.1 shows the result of the Multiple Regression Analysis of Industry Profile predicting Business Lean Practices.

**Table 10.1: Tabular Regression Analysis of Industry Profile predicting Business Lean Practices**

Predictors	Unstandardized Coefficients		Standardized Coefficient	t	Sig.
	B	Std. Error	Beta		
(Constant)	3.589	.172		20.818	.000
Busi. Location	.002	.035	.004	.069	.945
Years in the Industry	.067	.029	.119	2.338	.020

Types of Bus. Organization	-.019	.050	-.021	-.386	.700
Types of Bus. Ownership	.075	.038	.103	1.969	.050
Ave. No. of Employees	.023	.063	.020	.363	.717
Industry Engaged	.002	.013	.006	.124	.901

a. Dependent Variable: LEAN PRACTICES

b. Predictors: (Constant), Industry Engaged, Types of Bus. Ownership, Years in the Industry, Busi. Location, Types of Bus. Organization, Ave. No. of Employees

**R :** .157<sup>a</sup>  
**R<sup>2</sup>:** .025  
**Adjusted R<sup>2</sup>:** .009  
**Sig. Value:** .000 (Significant)

**Figure 10.1: Graphical Regression Analysis of Industry Profile predicting Lean Business Practices**

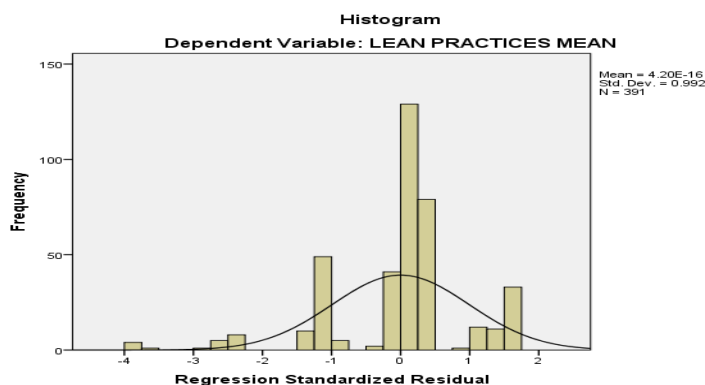


Table 10.1 shows the result of multiple regression analysis on the criterion value of Lean business practices accounted from the predictors of industry profile of the MSME company respondents. Eight percent (8 %), seven percent (7 %) and two percent (2 %) of LBP are attributed from the Type of business ownership, years of existence in the industry and average number of employees respectively. And hence, LBP implementation is not accounted from the types of business organization, the kind of industry engaged with and business location.

The data obtained an r value of .157, r square value of .025, adjusted r square value of .009 and significant value of .000 which revealed that only 2.5 % of the variation of LBP criterion can be explained by the industry profile according to number of employees, years of existence, type of business organization and business ownership. Overall, the regression model are statistically significantly predicts the outcome variable.

## 6. CONCLUSIONS

Conclusion drawn from the study reveal that majority of the enterprise respondents are females ages 31-40 below owning and managing Micro enterprises mostly located in Luzon and NCR regions operating in less than five years considered family owned sole proprietorship company engaged into three types of industry namely as Sari-sari Store & Mini-Groceries, Ukay-Ukay, Tiangge, Supermarkets; food businesses and Agency, Amusement And Gaming, Accommodation & Lodging, food and hardware businesses. MSME performs an average level of Sales, Profitability and Market Share in their business operation. Business performance level as to sales, profitability and market share of the Enterprise-respondents in Luzon and Mindanao varies significantly while NCR and Visayas posited no significant difference in the level of business performance. MSME in Visayas region implements the highest level of SQM in terms of customer focus, Strategic Leadership and management principles, Process Approach, System Approach, Continual Improvement and Innovation and Supplier relationship and the least are in NCR regions. Visayas and NCR region obtained the highest composite mean value on Lean Business practices in terms of Product/Service Value Management, Cost Leadership business strategy, Process Utilization lean practices, Procurement & Time Management, Enterprise Resource and Risk Management while Luzon Regions obtained the lowest composite mean. Highest sustainable means of operation in terms of socio-economic and environmental sustainability are shown by the Visayas region and NCR regions while the Luzon and Mindanao Regions obtained the lowest composite mean.

Strategic Quality Management incurred by the MSME respondents in Luzon and Mindanao varies significantly while MSME respondents in NCR and Visayas has no significant difference in their level of Strategic Quality Management implementation. Lean business practices of Luzon and Mindanao varies significantly while MSME respondents in NCR and Visayas have no significant difference in their Lean Business Practices. MSME respondents in Luzon and Mindanao vary significantly in their Entrepreneurial Sustainability while MSME respondents in NCR and Visayas have no significant difference in their Entrepreneurial Sustainability. NCR-MSMEs' implementation of SQM has high influence on lean business practices its sustainability in business while the Lean business practices of MSME in NCR has high influence on their entrepreneurial sustainability. NCR MSMEs' lean business practices and strategic quality management implementation have a slight relationship but not significant with business performance. Luzon-MSMEs' implementation of SQM has high influence on lean business practices and sustainability in business while the Lean business practices of MSME in Luzon has high influence on their entrepreneurial sustainability. Luzon MSMEs' strategic quality management implementation and lean business practices have a



slight relationship and not significant with business performance while entrepreneurial sustainability has no significant relationship with business performance at all. Visayas-MSMEs' implementation of SQM has high influence on lean business practices and sustainability in business while entrepreneurial sustainability has high significant relationship with business performance.

The Lean business practices of MSME in Visayas has high influence on their entrepreneurial sustainability while strategic quality management implementation and lean business practices have a slight relationship and not significant with business performance. Mindanao-MSMEs' implementation of SQM has moderate influence on lean business practices and sustainability in business while SQM has slight and significant relationship with business sustainability. Mindanao Entrepreneurial sustainability has slight and no significant relationship with business performance while their Lean business practices and SQM have no influence on their business performance.

Thus, the results revealed that a positive implementation of strategic quality management principles in business operation towards customer focus, strategic leadership practices, employee engagement, process approach, system approach, Continual Improvement & Innovation Practices and Mutually Beneficial Supplier Relationships significantly highly influence Lean business strategies that when implemented in terms of Product and service value management, Cost Leadership, Process Utilization, Procurement Time Management, Enterprise Resource Management, and Risk Management Product will lead into a sustainable means of business operation. Furthermore, pursuing an agile means of business performance is significantly relevant to implementation of strategic quality management, lean business practices and entrepreneurial sustainability. NCR-MSMEs' implementation of SQM has high influence on lean business practices that leads to sustainability in business but has less influence on business performance. Luzon-MSMEs' implementation of SQM has high influence on lean business practices and high relationship with its sustainability in business but have a slight relationship and not significant with business performance. Visayas-MSMEs' implementation of SQM has high influence on lean business practices and sustainability in business and slight relationship and not significant with business performance. Mindanao-MSMEs' implementation of SQM has moderate influence on lean business practices and lean business practices that leads to a moderate impact on sustainability in business and slight and no significant relationship with business performance. While the Lean business practices and SQM of MSME in Mindanao has no influence on their business performance.

The over-all Correlations between Strategic Quality Management, Lean Business Practices, Entrepreneurial Sustainability and Business Performance portrays significant high relationship between strategic quality management and lean business practices and

moderate relationship with entrepreneurial sustainability but shown slight relationship but not significant on business performance. Lean business practices exhibited high relationship with entrepreneurial sustainability and slight relationship but not significant with business performance. Entrepreneurial sustainability showed slight relationship but not significant with business performance. A positive implementation of strategic quality management principles in business operation towards customer focus, strategic leadership practices, employee engagement, process approach, system approach, Continual Improvement & Innovation Practices and Mutually Beneficial Supplier Relationships significantly highly influence Lean business strategies that when implemented in terms of Product and service value management, Cost Leadership, Process Utilization, Procurement Time Management, Enterprise Resource Management, and Risk Management Product will lead into a sustainable means of business operation.

Furthermore, pursuing an agile means of business performance is significantly relevant to implementation of strategic quality management, lean business practices and entrepreneurial sustainability. Multiple Regression Analysis of Industry Profile predicting Business Performance Agility showed that increases of business performance agility are attributed highly from the classification of business organization as micro, small or medium enterprise and the type of business ownership they have. Industry Profile predicting Entrepreneurial Sustainability is highly attributed from Lean business practices In terms of Product and service value management, Cost Leadership, Process Utilization, Procurement Time Management, Enterprise Resource Management, and Risk Management as well as the implementation of strategic quality management on customer focus, strategic leadership practices, employee engagement, process approach, system approach, Continual Improvement & Innovation Practices and Mutually Beneficial Supplier Relationships. The type of business organization, business ownership and classification as MSME are slightly associated with business sustainability. And hence, business sustainability are not affected at all whether they are located in Luzon, Visayas, Mindanao and in NCR region or in their period of existence in the business industry. Industry Profile predicting Strategic Quality Management Implementation are slightly attributed from the Type of business organization, years of existence in the industry and business location respectively and are not accounted from the number of employees they have, types of business organization and industry engaged with and slightly attributed from the Type of business ownership, years of existence in the industry and average number of employees respectively and not accounted from the types of business organization, the kind of industry engaged with and business location.

## **7. RECOMMENDATIONS**

This study highlighted the primary influential factors of sustainable entrepreneurship and business performance agility from general management studies into a research model focused on Micro, Small and Medium-sized businesses located in four major areas in the Philippines mainly; Luzon, NCR, Visayas and Mindanao regions. The present study investigated the level of implementation of Strategic quality management and Lean business practices and their potential to improve enterprise competitiveness and sustainability by measuring company performance agility.

Specifically, the relationships were explored between strategic quality management predictors such as customer focus, Strategic Leadership and management principles, Process Approach, System Approach, Continual Improvement and Innovation and Supplier relationship and lean business practices in terms of Product/Service Value Management, Cost Leadership business strategy, and Process Utilization lean practices, Procurement & Time Management, Enterprise Resource and Risk Management. Company performance agility were evaluated through measuring the level of sale, profitability and market share of the enterprise respondents while business sustainability were measured using determining factors of economic impact, environmental sustainability, and public/social awareness in the context of Micro, Small and Medium entrepreneurial activities in Luzon, Visayas, Mindanao and NCR regions.

In the light of the above findings and conclusions of the study, the following recommendations are hereby endorsed:

The challenge of agility for adopting new business norms creates the need for measuring performance under changing conditions. This study aimed to demonstrate the financial, non-financial and sustainability consequences of implementing different combinations of strategic quality management and lean techniques on the business performance. There are six quality management and six lean factors studied to analyze the impact on three performance and sustainability indicators.

As the study posited that the implementation of strategic quality management principles in business operation and Lean business practices has a slight relationship and not significant with business performance agility as shown by the average level of business performance on Sales, Profitability and Market Share generated by MSME in the Philippines and that the increase of business performance agility are attributed highly from the classification of business organization as micro, small or medium enterprise and the type of business ownership they have and not on the implementation of SQM and LBP, so it is recommended that MSME should embrace, adapt and intensify their implementation of SQM and LBP in their business processes and operation that is geared toward higher business performance and long-term firm profitability. MSME NCR should develop a deeper application SQM to increase business performance. MSME in Luzon

Regions must intensify Lean business practices while Luzon and Mindanao Regions should aim highest sustainable means of operation.

MSME Entrepreneurial Sustainability is highly attributed from Lean business practices In terms of Product and service value management, Cost Leadership, Process Utilization, Procurement Time Management, Enterprise Resource Management, and Risk Management as well as the implementation of strategic quality management on customer focus, strategic leadership practices, employee engagement, process approach, system approach, Continual Improvement & Innovation Practices and Mutually Beneficial Supplier Relationships. The type of business organization, business ownership and classification as MSME are slightly associated with business sustainability. And hence, business sustainability are not affected at all whether they are located in Luzon, Visayas, Mindanao and in NCR region or in their period of existence in the business industry. Strategic Quality Management Implementation are slightly attributed from the Type of business organization, years of existence in the industry and business location respectively and are not accounted from the number of employees they have, types of business organization and industry engaged with. Business Lean Practices are slightly attributed from the Type of business ownership, years of existence in the industry and average number of employees respectively and not accounted from the types of business organization, the kind of industry engaged with and business location.

They should also acknowledge the fact and see as a prerequisite for future business conduct that a positive approach towards SQM & LBP, regardless of the extent and limitations of their external and internal resources (asset, process, and technology and manpower density) is an important factor for a sustainable means of operation. MSME owners and managers must learn what it means to incorporate the quality in the product and services they deliver, attracting and catering to their best customers, acquiring quality materials, controlling the business support and processes with all their attention taking into account the future consequences on the needs of the customer, the community and the society as a whole.

### **Limitations and Future Studies**

As in any other research endeavor, the present study would benefit from further improvements. Firstly, the conceptual and research model would be improved by the inclusion of more detailed and focused measures of the existing predictors. At this point, the items assigned to measuring Triple Bottom Line sustainability constructs addressed the entrepreneurs' approaches (perceptions, attitudes, beliefs) and not the actual conducts. Thus, a future study would envision another multi-item framework targeting the behavioral aspects.

Secondly, the comparison of results of different field surveys has its advantages in comparing different researches and enriching discussion of results of individual researches. On the other hand, there are very serious difficulties arising from different samples of enterprises (their specialization, size, "age", etc.) within each survey. Another problem lies in different approaches to understanding the performance of companies, not only from the theoretical conception but also from the perception of the business managers themselves. The outcomes of researches focused on comparison of performance measurement and management of enterprises in the Philippines confirm that although MSME firms in the country have been gradually accepting a number of concepts and tools to measure and manage performance and are more familiar with them and apply them as well, the strong majority of their usage is still limited and varies to the rest of the MSME in the Philippines. An important tool for the performance measurement and management in most companies are financial indicators. A number of especially medium firms use outputs from the management accounting and controlling; a high utilization rate is also evident in quality management tools. The conceptual and research model would benefit from including other constructs and variables which were not considered in this point. It is assume the fact that the current model takes into account only three major relationships between the latent variables and the consideration of other factors or moderating effects would refine the methodological design and the findings through the inclusion of controls in the structural model, like the size classification of the enterprise based on the actual amount of sales level, profitability and market share, would be a pertinent endeavor in this respect.

Thirdly, testing the proposed hypotheses on larger samples or in the context of a certain business sector with the inclusion of large enterprise would make the analysis more accurate and would present a clearer view on the field.

Another factor is that the Statistics on the census of MSME establishments are being conducted every 5 years and the annual survey of establishments is usually released 15-24 months after the year. This makes the data more or less an imprecise tool for analysis and decision-making. The scope and coverage of MSME statistics are limited to the number of establishments, employment contribution, and regional distribution. More important data which will help policy makers and businesses to react quickly in a competitive environment are usually not available. These statistics include: Export contribution of MSMEs (direct and indirect contribution), Contribution of micro enterprises/informal MSMEs to GDP and Sectoral statistics/Growth potentials of industries. There are confidentiality clauses in census for firm level data. This cannot be accessed at the National Statistics Office because their agency has to comply with the rules of confidentiality. In similar ways, banks also ensure that access to customer

information is limited to selected bank employees and are very conservative in disclosing client information.

And finally, the Philippines have a large section of small business constituting the so-called underground or informal economy. This refers to the small scale units in the national economy, which produce and distribute goods and services without the benefit of official sanction or control. They don't register, don't keep books and don't pay taxes. They operate beyond the reach of the law. They have little or no access to organized markets, credit institutions, educational or training centers or public services which delimits the legal existence of some micro, small and medium enterprises. Although efforts are being made by the government to bring the underground economy to the surface, the nature of this sector makes it very difficult to gather and process statistics on them.

### **APPENDIX I: COVER PAGE**

Available from the author upon request

### **APPENDIX II: SURVEY INSTRUMENT**

Available from the author upon request

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