

E-ISSN: 2621-654X

P-ISSN: 2622-8793

*International Journal of  
Organizational Business Excellence*

# IJOBEX

VOL. 3(1) JUN. 2020



International  
Performance  
Excellence Forum

## INTERNATIONAL JOURNAL OF ORGANIZATIONAL BUSINESS EXCELLENCE

### ABOUT IJOBEX

#### OVERVIEW

Business excellence relies heavily on the type of strategies, techniques and tools for measuring and benchmarking the business performance. Subsequently, identifying best practices and their implementation eventually decides excellence in business. Given the importance of business excellence, a journal devoted to performance evaluation and best practices both processes and results, especially in order to be competitive in the global market, is essential. International Journal of Organizational Business Excellence (IJOBEX) addresses new developments in business excellence and best practices, and methodologies to determine these in both manufacturing and service organizations.

IJOBEX focuses on organizational performance with particular areas as the scope—strategic planning, human resource, communication and management that result in improving organizational. Organizational performance excellence is essentially required to improve values to customers and stakeholders that contribute to organizational sustainability, and to develop organizational effectiveness.

#### INDEXING

Currently indexed in Google Scholar, DOI, Crossref, and being submitted to DOAJ and to Elsevier for inclusion in Scopus.

#### FOCUS AND SCOPE

The scope of this journal includes, but not limited to:

- ▶ Leadership for performance excellence
- ▶ Strategic Planning for performance excellence
- ▶ Customer and market focus for performance excellence
- ▶ Information, measurement, knowledge management, and information technology for performance excellence
- ▶ Human Resource for performance excellence
- ▶ Operational Focus for performance excellence
- ▶ Communication for performance excellence
- ▶ Performance measures and metrics in business management
- ▶ Methodologies and tools for performance measurement
- ▶ Benchmarking business performance
- ▶ Business excellence in various functional areas
- ▶ Best practices in business management
- ▶ World class business and operational strategies and techniques
- ▶ Alignment between different levels of strategies
- ▶ Understanding the customer requirements
- ▶ Process design management
- ▶ Knowledge management for improved performance
- ▶ Systems approach for determining the best practices
- ▶ Six-Sigma, QFD, Taguchi methods and TQM
- ▶ Data warehousing and data mining in business excellence
- ▶ Measuring performance in creative industries
- ▶ Best practices in creative economy and industries

All of the topics above are considered to have essential involvement in developing organizational performance excellence.

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International Journal of  
Organizational Business Excellence

**IJOBEX**

**Vol. 3 (1) JUN. 2020**

*A scientific journal published by*  
Bina Nusantara University & International Performance Excellence Forum

# IJOBEX

International Journal of Organizational Business Excellence

AN INTERNATIONAL PEER-REVIEWED JOURNAL

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# Foreword

Welcome to the fifth issue of **International Journal of Organizational Business Excellence (IJOBEX)**. IJOBEX is an open-access scientific journal published by **Bina Nusantara University (BINUS)** and **International Performance Excellence Forum (IPEF)** and is independently managed and run on a non-profit basis for the benefit of the world-wide science community. This journal is specifically committed to publish research paper in the area of business management and social sciences that contribute in excellence to business, manufacturing, healthcare and education in both public and private organization. The topics include but not limited to; Leadership, Strategic Planning, Customer and Market Focus, Information, Measurement, Knowledge Management, and Information Technology, Human Resource, Operational Focus, and Communication for Performance Excellence. This fifth issue is a compilation of 5 regular research articles coming from different countries i.e. **Malaysia, Indonesia, Nigeria and India**.

The first article talks about business excellence initiatives by studying Dubai award-winning organizations in the United Arab Emirates (*Mehran Doulatabadi, Hajime Ushimaru and Azizah Yusof*). The second article examines the production process at PT TBA. Alam Sutera using the value stream mapping method (*Haryadi Sarjono, Stevin Dewa Yusuf and Gilang Ananta Ferrial*). The following articles talks about the factors affecting efficiency of Crude Palm Oil in Indonesia palm oil industry (*Yuli Eni, Christy Agustina, Metta Merlinna, Risya Bella, Roberto M. Arguelles and Sheryl Satorre-Estella*); survival strategies for small and medium scale enterprises in Nigeria due to the menace of COVID-19 (*Michael Okon Essien, Emmanuel Sunday Ukpong, Ime Robson Nseobot, Clement Efiong Okon, Ikoroha Innocent Simeon, Annetie Imo Effiong, Vinesh Dinnoo and Uduakabasi Ana Eyo*). The last article is about malnutrition in India caused by the COVID-19 pandemic (*Kanchan Sandhu*).

We would like to thank the contributors as well as the reviewers for their commitment and patience which made this fifth edition a successful endeavor. It is hoped that this publication would be an encouragement for researchers from around the world to be more active in publishing their research papers many more with good quality research paper that are insightful for academics and practitioners alike.

Special thanks to the Editorial Board Member, International Advisory Board and, Dr Nayan Kanwal as the consultant for the guidance and support in making this publication possible. This will continue to motivate us to do more and better and bring IJOBEX into international wider audience.

**Bachtiar H. Simamora, M.Sc., PhD.**

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June 2020

**International Journal of Organizational Business Excellence**  
**Vol. 3 (1) Jun. 2020**

**Contents**

<b>Foreword</b>	i
Bachtiar H. Simamora	
 Business Excellence Initiatives: A Study of Dubai Quality Award-Winning Organizations in UAE	 1
<i>Mehran Doulatatabadi, Hajime Ushimaru and Azizah Yusof</i>	
 Analysis of the Production Process at PT TBA. Alam Sutera Using the Value Stream Mapping Method	 9
<i>Haryadi Sarjono, Stevin Dewa Yusuf and Gilang Ananta Ferrial</i>	
 The Factors Affecting Efficiency of Crude Palm Oil in Indonesia Palm Oil Industry	 17
<i>Yuli Eni, Christy Agustina, Metta Merlinna, Risya Bella, Roberto M. Arguelles and Sheryl Satorre-Estella</i>	
 The Menace of COVID-19: Survival Strategies for Small and Medium Scale Enterprises in Nigeria	 25
<i>Michael Okon Essien, Emmanuel Sunday Ukpogon, Ime Robson Nseobot, Clement Efiogon Okon, Ikoroha Innocent Simeon, Annetie Imo Efiogon, Vinesh Dinnoo and Uduakabasi Ana Eyo</i>	
 COVID-19 – Affecting Malnutrition in India	 35
<i>Kanchan Sandhu</i>	



## BUSINESS EXCELLENCE INITIATIVES: A STUDY OF DUBAI QUALITY AWARD-WINNING ORGANIZATIONS IN UAE

Mehran Doulatatabadi<sup>1\*</sup>, Hajime Ushimaru<sup>2</sup> and Azizah Yusof<sup>3</sup>

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### Abstract

*This paper presents the central results of a survey analysis carried out in the UAE with respect to business excellence initiatives. The main purpose of this research is to investigate the use of business excellence initiatives in Dubai quality award-winning organizations. The study used a self-administered questionnaire to confirm the adaptability of business excellence initiatives by Dubai quality award-winning organizations. Several statistical tests including descriptive statistics, internal consistency reliability and content validity were employed using the Statistical Package for the Social Sciences (SPSS). The result of the study shows that various business excellence initiatives already implemented by Dubai quality award-winning organizations for their efforts towards business excellence. The award-winning organizations believe that business excellence initiatives are important in helping them reach their organizational goals.*

**Keywords:** business excellence; initiatives, survey, Dubai Quality Award, UAE

### INTRODUCTION

In today's business environment, quality and excellence are two attributes most sought by organizations. While quality is a measurement against a standard or model, excellence is perhaps the "ultimate quality" (Bahaldin, 2005).

Excellence is the state or quality of excelling. Particularly in the field of business and organizations, excellence is considered to be an important value, and a goal to be pursued. In the EFQM Annual Report (2015), 'excellence' is defined as "an outstanding practice in managing the organization and achieving results, based on a set of fundamental

concepts". In this respect, BX as a new modern management philosophy has been an important subject among organizations (Dahlgaard et al., 2013; Mann et al., 2011). With the changes in the business environment, the term of 'excellence' has now been replaced dramatically as a new word for 'quality'.

The concept of 'business excellence' (BX) which is also known as 'organizational excellence', is defined through and based on the world wide quality award models (Doulatatabadi & Yusof, 2015). By definition, BX is considered as a path to be the best or a world-class organization which represents an important means for achieving excellence. The starting point in achieving excellence is to improve quality. According to Lam, Chan & Chan (2004) there are five levels of excellence maturity ranging from lowest to highest namely Unaware, Uncommitted, Beginners, Improver, and Achiever. Each level has its own

#### ARTICLE INFO

##### Article history:

Received: 16 January 2020

Accepted: 9 March 2020

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meaning which has been developed mainly based on the literature.

This paper provides a discussion on general descriptive statistics of respondents which mainly covers the first section of the survey questionnaire. It is followed by discussion on the reliability and validity tests conducted on the factors used in survey instrument are also presented prior the analysis from the final section. The main characteristics of the companies and respondents who participated in the pilot study are also presented. Further discussion and conclusion on the main findings drawn from the analysis is collectively reported at the end of the paper.

## LITERATURE REVIEW

Among the quality improvement approaches which have been proposed, however, Business Excellence (BX), as a modern operation management practice based on the concept of Total Quality Management (TQM), has gained widespread attention of organizations (Zairi & Alsughayir, 2011; Mann et al., 2011). It has been developed as the result of intense world-wide competition based on the quality award models or frameworks to the improvements of overall business performance (Dahlgaard-Park & Dahlgaard, 2010). European Foundation for Quality Management (EFQM) Excellence Model and the Baldrige Criteria for Performance Excellence (BCPE) are two examples of globally accepted major quality excellence award models. The first and immediate aim of these models is the continuous improvement of performance towards achieving excellence (Brown, 2014; Mann et al., 2011; Porter & Tanner, 2012; Sila & Ebrahimpour, 2002). Self-assessment and benchmarking is the main element of these models (Dahlgaard et al., 2013).

As the result of intense global competition, the term TQM lost its appeal while the concept of BX appeared (Dahlgaard-Park, 2011). The concepts and practice of BX and TQM have become very popular around the world (Dahlgaard et al., 2013; Zairi & Alsughayir, 2011; Mann et al., 2011). Over the last two

decades, TQM is dramatically accepted as one of the fundamental criterion (element) for achieving 'excellence'. On the other hand, the concept of TQM has been used by researchers, practitioners and national/international award agencies as an important parameter/enabler while developing their frameworks for implementing and achieving 'organizational excellence' (Adebanjo, 2001).

BX and TQM are considered as straightforward approaches, which apply certain principles and practices throughout the organizations. However, as stated by Dahlgaard-Park & Dahlgaard (2003) the manner in which these approached are enacted depends on the organizational paradigm. In general, TQM represents a philosophy, and a system of methodologies and practices as well as an on-going commitment to BX that covers all issues and engages all individuals within an organization. The common characteristics between these two terms are continuous improvement, culture, customer focus, employee empowerment, innovation, learning, knowledge, and strategy (Wang & Ahmed, 2001).

According to Adebanjo (2001) the failure in TQM interest was followed by an immediate growth in BX. He suggests that BX was widely accepted for exactly the same reasons that TQM declined. Although TQM and BX have many similarities, the two concepts possess a number of differences as well.

Quality and business excellence award assessment models have been developed as a practical tool to help organisations establish an appropriate management system by measuring where they are on the path to excellence, helping them to understand the gaps, and then stimulating solutions' (EFQM 2003). They are considered as holistic models to guide organizations to assess quality activities in their journey towards excellence. Guidelines of these award models usually make reference to the self-assessment process and benchmarking based on the core elements of TQM philosophy. The Deming Prize (DP) of Japan, *the Baldrige Excellence Framework of the*



*United States*, the EFQM Excellence Award in Europe, and the Australian Business Excellence Framework (ABEF) in Australia are known as the most widely used self-assessment models/frameworks throughout the world. They have consolidated as the most widely recognized self-assessment model for achieving organizational excellence (Brown, 2014; Mann et al., 2011; Hughes & Halsall, 2002; Miguel, 2001; Puay et al., 1998). The overall models of these international awards generally include a minimum of seven core criteria. All the models follow similar procedures for the assignment of their own quality and business excellence awards programs and use a weighting scheme in scoring performance against the defined criteria. The models and their criteria have undergone changes over the years. According to Doulatatabadi and Yusof (2015), there are more similarities than differences between these models as worldwide tools of self-assessment in terms of criteria and relevant scores.

## **MATERIALS AND METHODS**

For the purpose of this study, a self-administered questionnaire was chosen as the primarily research instrument to elicit the respondent's opinions.

There are a set of issues that should be clarified before conducting the survey method type in form of questionnaire. With respect to this study, issues consist of developing a sound questionnaire, selection of correct sample size and respondents, choosing appropriate methods for data collection analysis, determining reliability and validity of questionnaire, normality test and pre-testing of questionnaire are discussed in detail in the following sections respectively.

### **Survey Questionnaire Design**

The survey questionnaire of the study was designed based on a variety of inputs including literature review, inputs from quality experts. The questionnaire was improved in terms of clarity based on a pilot survey. The first section

of the survey involved an investigation on the general background and profile of the respondents, which includes the number of years in business, types of business, type of industry, size of organization, respondent's position and years of experience. The business excellence initiatives implemented by the respondent companies also are discussed in this section. The main purpose was to describe and understand some of the characteristics of the survey respondent companies that will be helpful in later analysis. Secondary data such as type of organization and level of recognition was also analysed to get detailed background of the companies.

The survey questionnaire of the study is included two main sections as follows:

#### *Section 1*

Basic information about the organizational collection of demographic variables.

#### *Section 2*

A number of 52 statements which resulted from an extensive review of literature on the critical factors to quality management practices as well as the feedback of academics and practitioners in the field.

A five-point Likert-type scale ranging from 1 (not useful at all) to 5 (very useful) was used to assess the perspective of respondents. The respondents were asked to determine the level of importance of the factors rating on a five-point interval scale ranging from 1 (being not important) to 5 (being an extremely important). The first page of the questionnaire highlighted the objectives of the pilot survey.

### **Survey Respondents and Sample**

The pilot study was carried out with a total of 15 companies which were 10% of the sample size as suggested by Fink (2003) as cited in Saunders (2007). Convenience sampling technique as a form of non-probability sampling design was used in selecting this pilot sample. Because of the

widely dispersed organizations, the target sample for the pilot survey was limited only to those companies that received the DQA in the state of Dubai in the years between 2003 and 2010. This state hosted about 76.5% of total number of the sample. The companies which took part in the survey varied in terms of size, type of business and industry.

It was expected the selected sample to fulfil the requirements of all the statistical techniques used, as well as to justify the cost and time limitations of the study. It was strongly believed that the selected pilot companies from different sectors and industries with sufficient experiences in implementing the DQA model and its criteria would therefore be able to provide a valid feedback on the survey questionnaire.

To collect sufficient feedback from the respondents for further improvement of the questionnaire, directors or managers in charge of quality and business excellence were included as the primary information sources for the pilot survey. It is essential that the perception of critical factors comes from those who have a good understanding and experience in topic of quality management and business excellence, and these individuals assumed to fit this criterion. To get reliable feedback as much as possible, all respondents were carefully targeted by name, position and contact address. All the respondents were informed about the survey through an electronic invitation e-mail two weeks prior distributing of the questionnaires.

### **Survey Administration**

12 of the 15 questionnaires distributed, were received back completed and collected on the same day. However, in three cases, the researcher had to wait for the questionnaire to be completed by respondents and return for collection. For this reason, the researcher had to make several phone calls and send reminder electronic mails for new schedules and waited to collect the completed questionnaires. This was a bit challenging task and time consuming which was affected on conducting the actual survey as was planned. Finally, all the 15

questionnaires were completed by respondents giving a response rate of 100 per cent. Support from top management within the respondent's companies, handed all questionnaires personally to every participant, and close follow-up via phone calls as well as the length of the questionnaire (no open-ended questions were included) helped to get this high response rate. The procedures of distribution and collection of the pilot survey were successfully completed over two (2) months.

In order to achieve the objectives of the study, the draft of the questionnaire was personally distributed through one to one visit to the prospective organizations. Although this process was very time consuming and costly, but has helped the researcher in achieving the following objectives: (a) To ensure the questions are answered by the right person, (b) To have a direct dialogue with respondents while introducing the survey, (c) To make sure that the survey questions were understood by the respondents, (d) To collect the questionnaires immediately after completed by respondents, (e) To gain more completed questionnaires and increase the response rate.

Further to this, with the pilot survey questionnaire each participant was also requested to assess the questionnaire separately through using an 'Evaluation Sheet'. This assessment mainly was conducted in order to ensure about the following issues: (a) total time usage to complete each questionnaire, (b) sequencing of the questions asked, (c) instructions, and suitability of ranking scale, (d) comprehensibility of the questions and ambiguity (if any) and (e) consistency of the questions and overall design and format.

### **Survey Data Analysis**

The survey data collected from the respondents were mainly analyzed *through* Statistical Package for Social Sciences (SPSS) software Version 27 using descriptive statistics. In order to ensure about the quality of the survey questionnaire, a specific reliability and validity tests in the form of internal consistency, content validity were also applied

on the survey instrument for the purpose of this study.

## RESULTS AND DISCUSSIONS

### Descriptive Statistics

As for the demographic profile of respondents, the descriptive statistical results obtained from SPSS revealed that the most of the companies were established over 20 years (58.2%) and grouped as fully local-private companies (56.0%). Figures 1 and 2 present the results.

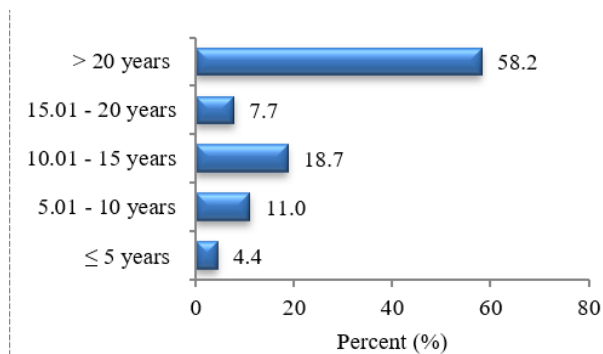


Figure 1. Respondent companies by years of operation

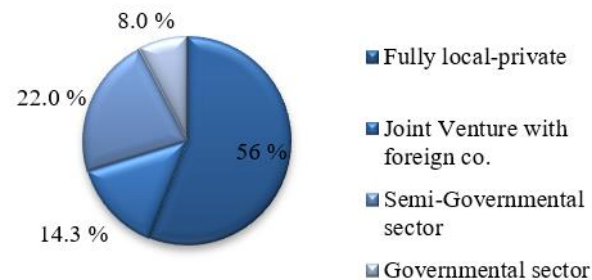


Figure 2. Percentage of respondents by types of business

According to the type of industry, as shown in Figure 3, the respondents came from different types of industry with service being the highest at 22%. This is followed by trade and manufacturing sectors with 16.5% and 14.3% respectively. These results indicate a good diversity of industries among the respondents for this study.

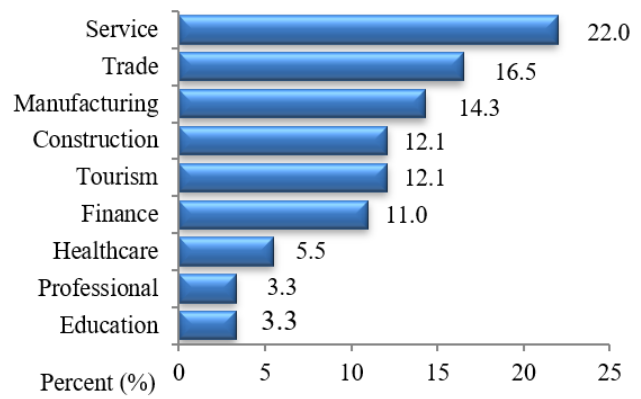


Figure 3. Percentage of respondents by types of business

The analysis also shows that the majority of the respondents (71.4%) were part of large companies with more than 250 employees, working as quality manager/officer (46.2%) for more than 7 years (53.3%) and hold a postgraduate-degree (73.3%) in related fields. Figures 4 and 5 present the results.

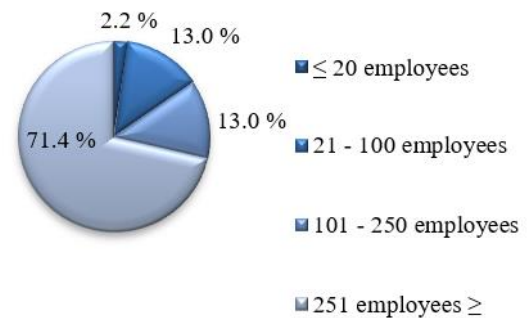


Figure 4. Percentage of respondents by the number of employees



Figure 5. Respondents by position/job title

With respect to business excellence initiatives the respondents were asked to indicate those business excellence initiatives they had already implemented within their companies from a list of major initiatives given. Figure 6 shows the rankings of initiatives implemented by respective companies in form of a Pareto diagram. The result shows that various business excellence initiatives already implemented by respondents for their efforts towards excellence. As illustrated in diagram, the three initiatives implemented by the vast majority of the respondent companies are Quality Mission Statement (93.4%), Customer (Client) Surveys (81.3%), and Employee Suggestion Scheme (75.8%). Approaches such as HACCP, Lean and Six Sigma with average of 15% are placed as the three least implemented initiatives. The analysis also shows that about 54.9% of the surveyed companies implemented the EFQM Excellence Model.

### Internal Consistency Reliability

For the purpose of this study, the internal consistency reliability analysis was performed using Cronbach's coefficient alpha as part of the standard reliability test used in the SPSS software. In order to ensure the internal consistency and reliability of the variables on the pilot survey, Cronbach's alpha coefficient test was performed. The coefficient alpha values of the factors were significantly greater than the general requirement (e.g. >0.70). This indicates that all the variables used in survey questionnaire were likely to be understandable by respondents.

### Content Validity

In dealing with the content validity of the survey questionnaire, three approaches conducted in this research including (1) literature review; (2) expert's opinion; and (3) pilot study. First an extensive review was carried out in the field of quality management and business excellence to elicit critical factors and related sub-factors of the survey questionnaire. The developed survey instrument then reviewed by 27 quality experts

including of 11 academics and 16 practitioners from industry.

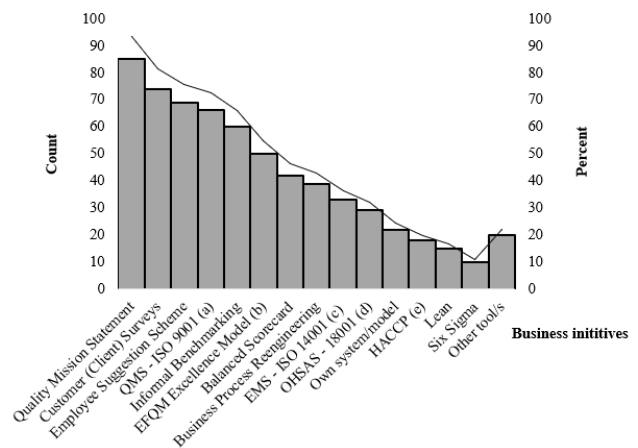


Figure 6. Pareto diagram of business excellence initiatives used by respondents.

The comments received from the pilot respondents were carefully reviewed and analyzed and improvements were made on the questionnaire as far as possible before administering the questionnaire to the final sample. The main issues highlighted by the pilot respondents were the words used in the elements representing the critical factors. As such, a few certain words relating to the critical factors were changed in order to make the questions clearer. For example, 'strategy and planning management' was changed to 'strategy and quality planning', and 'work climate and culture'. One sub-factor of organizational culture, the current pay scheme, was removed from the final draft of questionnaire, and 'business excellence' 'organizational culture' was changed to culture' was added as a new sub-factor as suggested by one of the respondents.

Majority of the respondents also expressed a positive comment on the length of the questionnaire which was a manageable time for the respondent to answer. From the survey, it is concluded that most of the proposed factors match with industry practices. The award-winning organizations believe that business excellence initiatives are important in helping them reach their organizational goals.

## CONCLUSIONS

This paper has presented the results from a survey of the business excellence initiatives in Dubai quality award-winning organizations in the United Arab Emirates. Several statistical tests were employed using the SPSS to analyze data. This result indicates that the respondents had sufficient knowledge and experience to assess the survey questionnaire and provide valid feedback and comments on the question items. In this way, it is strongly believed that the survey instrument developed for this study have content validity since it was well received by the panel of experts and the respondents of pilot study. As such, it can be concluded that the developed survey questionnaire and proposed factors of this study was a valid measure for further analyses.

## ACKNOWLEDGEMENT

The authors would like to acknowledge Dubai Quality Group (DQG) and all award-winning organizations and the respondents that participated in this survey and completed the survey questions.

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## ANALYSIS OF THE PRODUCTION PROCESS AT PT TBA. ALAM SUTERA USING THE VALUE STREAM MAPPING METHOD

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### Abstract

*Each Production Process must have a shortage that may not have very short-term effects but in the long run waste can disrupt the effectiveness of the resources in the company. Minimizing waste in the production process is one of the goals of a company. Value stream mapping is one of the lean methods that can minimize waste in the production process. In this study, the method used to reduce production time at PT. TBA. is a fishbone and Value Stream Mapping (VSM). VSM is used to see the condition of production time in the company. To look for waste in the use of fishbone and to reduce it using line balancing. Found 2 line balancing that is unnecessary motion and unnecessary inventory. With this method we know the total cycle time of 69.06 minutes and the company can reduce 43.4% or 30 minutes of lead time from the total cycle time.*

**Keywords:** Lean, Value Stream Mapping, line balancing, unnecessary motion, unnecessary inventory

### INTRODUCTION

The agricultural sector has an important and strategic role in national development. These roles include increasing national income, providing employment, gaining added value and competitiveness, meeting domestic consumption needs, domestic industrial raw materials and optimizing sustainable management of natural resources. This is indicated by the large contribution of the agricultural sector to Gross Domestic Product (GDP), especially during the economic crisis experienced by Indonesia, the only sector that saved the Indonesian economy in 1997-1998 was the agribusiness sector, where agribusiness has positive growth. comparison

of the percentage of support in the world countries for the development of their agriculture sector in 1995-1997 and 2012-2014. Support for the development of agriculture in Indonesia in the last decade has increased considerably compared to many other countries in the world. In 1995-1997 there was only less than 1% support for the development of agriculture in Indonesia. Then, in 2012-2014, almost a decade later, that number jumped to 4%. Just like Indonesia, the Republic of China also experienced a similar increase in the country's support for the development of their agricultural profits. Brazil also experienced an increase in percentage, although it was not so significant. On the other hand, many of the countries listed in the graph above have experienced a significant decrease in the percentage representing state support in developing the agriculture sector of these countries. Based on data from 1995-1997, Korea has the highest percentage of state support for agricultural development. Neither

#### ARTICLE INFO

##### Article history:

Received: 20 January 2020

Accepted: 28 March 2020

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is Turkey, which is not far below Korea. However, the percentage of figures from these two countries has fallen significantly in 2012-2014.

The United States and Russia also experienced a very significant decrease from the percentage figures recorded in 1995 - 1997 and 2012 - 2014. The increase and decrease of the percentage figures which would be very significant in some countries could be due to differences in production focus in each country which is always evolving and developing all the time. Indonesia is known to be a country that is very rich in agricultural products and many other resources that cannot be found in many other countries in the world, but also with the development of urban farming where farmers/communities can do suitable planting rather than large areas. however narrow and its broad potential as a business area. So it is only natural that the support provided by the government and society increases rapidly because Indonesia's agriculture is one of the factors that has a major contribution to the economic development of the Indonesian state and also as the largest supplier of agricultural products to other countries in the world. Because of the increasing state support for the growth of the agricultural sector, many business profits have sprung up that support and accommodate farmers in Indonesia. This makes it easy for the agricultural sector's agricultural sector, both for trade and local consumption and export. Based on data obtained by researchers on production and Purchase orders by consumers PT TBA, the amount of company production is not comparable to the average PO they get. Meeting the weekly production target is carried out from the next day to cover the POs that have not been sent every day. This causes that the company can send POs not according to the day needed or ordered (Fig 1).

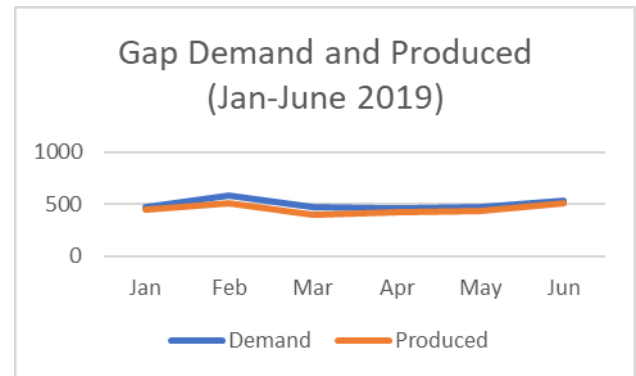


Figure 1. Demand and Produced PT TBA

From the background written, the research questions are: 1) What is the potential saving in minimizing the difference of goods entering and leaving inventory? 2) How to reduce waste at the time of production? The research results in improving production process that will minimize inventory cost and improving overall PT TBA business performance.

## LITERATURE REVIEW

### Value stream mapping

Define value streams as the process of creating, producing and delivering products (goods and/or services) to the market. For the process of making goods (good), the value stream includes suppliers of raw materials, manufacturing and assembling of goods, as well as distribution networks to users of the goods (Pandya, Kikani & Acharya, 2017).

### Current Stream Mapping

Current State Map is a map of production from suppliers, processing to the product to the customer. The data entered is the flow of material, processing time, and information (Ghushe et al., 2017).

### Future Stream Mapping

Future Stream Mapping is a map that is based on current stream mapping but has been improved to reduce lead time and waste (Ghushe et al., 2017).

### Fishbone

Fishbone or Ishikawa is a tool is a diagram created by Ishikawa to look for cause and effect, this diagram is shaped like a fish bone, this fishbone diagram can be used when we



need to recognize the root cause of a problem or the underlying cause of a particular effect, problem, or condition (Coccia, 2017).

### Cycle time

Cycle time is the time required in a part of the operation carried out from raw materials to finished products (Wavhal et al., 2017).

### Leadtime

Leadtime is a pause or time interval from a process to the next process in an operation process. (Kader and Akter, 2014).

### Line Balancing

Line Balancing is a tool to reduce bottlenecks on a production line by minimizing time and workload. (Parvez, Amin and Akter, 2017).

## MATERIALS AND METHODS

Theory At this stage, the author understands the basic theory through reading journals and reading books about value stream mapping from lean manufacturing. Furthermore, the authors compile the basic theory to be a guide and support in this study. The theory discussed in this study includes the understanding of value stream mapping from lean manufacturing, the tools used in lean manufacturing.

### The Method of Collecting Data

Data collection methods collected in this study are interview and observation. The interview contained in this study was

conducted with a business development supervisor, Desi Simbolon, PT. TBA. for getting information about problems that occur on the production line, and what needs to be examined more deeply.

Observations made by researchers are direct observations where, researchers are not directly involved in the production line, but researchers collect information needed by observing and collecting information directly from the production line.

## RESULTS AND DISCUSSIONS

Data from each process is collected by observing and calculating the actual time that occurred on the production.

1. Available Time:  

$$\text{total available Work time} = \text{Working time} - \text{Breaktime}$$

$$= 9 \text{ Hours} - 1 \text{ Hour} = 8 \text{ Hours} = 480 \text{ Min}$$

$$(\text{Working time} - \text{Breaktime}) \times 60 \text{ Min/Hours}$$
2. Change over time:  
 From the operator to operate
3. Uptime:  

$$\text{Uptime} = (\text{Available Time} - \text{change over time}) \times 100 \% / \text{Available Time}$$

$$\text{Uptime} (490 \text{ Min} - 10 \text{ Min}) \times 100\% / 490 \text{ Min}$$

$$= 97.95\%$$
4. Material delivery:  
 Supplier every 2 months

### Cycle Time

Cycle Time is the time needed to complete the production of one unit from beginning to end.

Table 1. *Table Time*

Process	Ct (min)	Co (min)	Available time	Uptime	Operator
Weighing	0.20	30	490	93.8%	1
Packaging	0.16	20	490	95.9%	1
Checking	0.5	10	490	97.9%	1
Packing	0.6	20	490	95.9%	1
Packaging	6.3	35	490	92.8%	1
<b>Total</b>	<b>7.76</b>	<b>115</b>			<b>5</b>

### Process Activity Mapping

The activity mapping process is processed from the cycle time table, the transportation table, the inventory is known from the

interview and unnecessary motion. These 4 activities help to analyze more waste. Total to all in a matter of minutes is 69.06 minutes.

Table 2. *Process Activity Mapping*

No	Activity	Time (min)
1	Process	7.76 min
2	Transportation	16.3 min
3	Inventory and Checking	30 min
4	Unnecessary motion	15 min
<b>Total</b>		<b>69.06 min</b>

### Waste Identification

Table 3. *Waste Reduction*

Waste type	Waste identification	Reason and handling
<b>Unnecessary inventory</b>	There is waste Inventory check in raw material checking 30 minutes from overall Cycle Time 69.06 min	Making proposed stream mapping
<b>Unnecessary motion</b>	Unnecessary motion 15 minutes from overall Cycle Time 69.06 minutes	Didn't have tools to transport Making fishbone diagram

### Fishbone

Fishbone or Ishikawa is a tool is a diagram created by Ishikawa to look for cause and effect, this diagram is shaped like a fishbone,

This fishbone diagram can be used when we need to recognize the root cause of a problem or the underlying cause of a particular effect, problem, or condition.

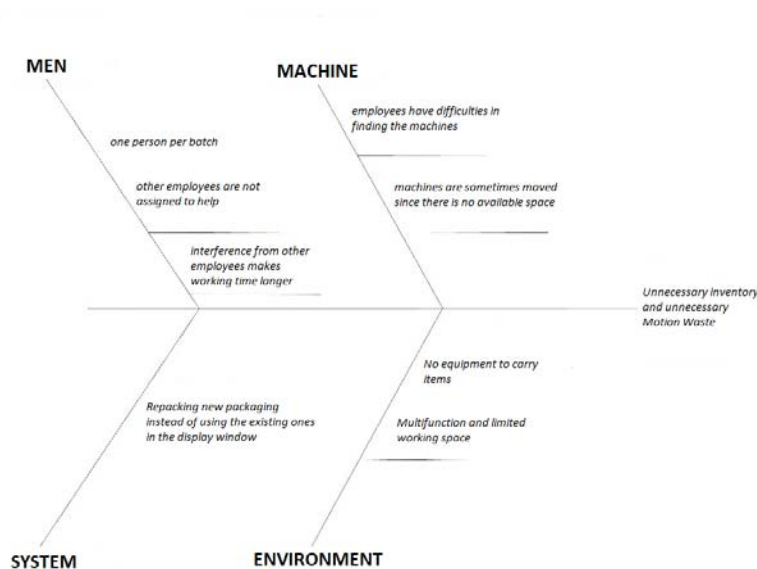


Figure 2. Root cause analysis using Fishbone

### Waste Unnecessary Inventory

Every day there are 1 person in the field consultant position to check goods (fertilizer, seeds and so on) for 30 minutes before starting the packaging process. From the unnecessary inventory waste has a contribution to the total Lead Time with the following calculation:

Current lead time: 69.08 min

Inventory check/total Lead Time x 100%:  
contribution in total Lead Time

30 min/69.08 min x 100%: 43,4%

Inventory check with one field consultant

If 1 of 2 helper helps Inventory to do check the shipment, production can save 15 minutes of total Lead Time with the following calculation:

Current lead time: 69.08 min

Inventory check/total Lead Time x 100%:  
contribution in total Lead Time

15 min/69.08 min x 100%: 21.7%

### Waste Unnecessary Motion

Every day the most unnecessary motion is generated from the movement of moving goods to be sent, which is as much as 15 minutes. From the unnecessary motion waste that has contributed to the total Lead Time with the following calculation:

Line balancing Waste waiting process:

Current Lead Time: 69.08 Minutes

Waiting time/Lead Time X 100%: contribution  
total Lead Time

15 min / 69.08 min x 100%: 21.7 %

Proposed Lead Time with one extra cart

### Comparison Current and Proposed Value Stream Mapping

Table 4. Difference *proposed total lead time reduction*

No	Measurement	Current mapping	Proposed mapping
1	Unnecessary Inventory	30 minutes	15 minutes
2	Unnecessary motion	15 minutes	0 minute
3	Operator	1-person inventory check	2-person inventory check
4	Addition	0 trolley	1 trolley

### Measurement

### Value stream mapping current and proposed difference

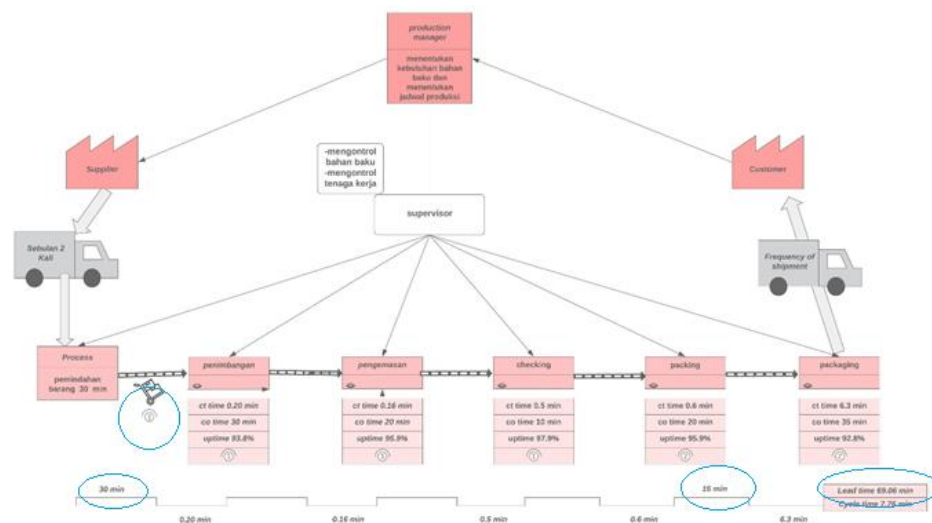


Figure 3. Current Value Stream Mapping (a)

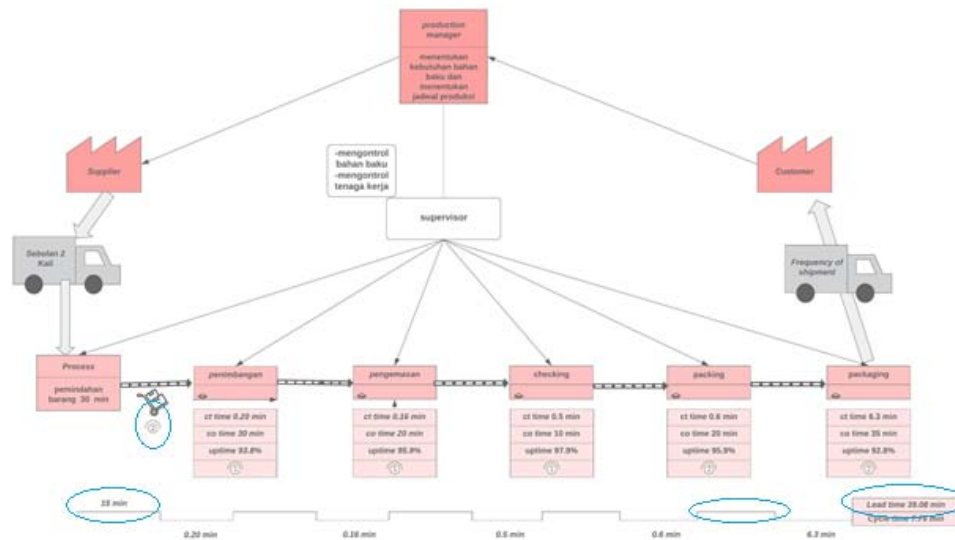


Figure 4. Proposed Value Stream Mapping (b)

After comparing the current stream mapping to the proposed stream mapping waste in the unnecessary inventory and unnecessary motion sections, it is expected that there will be a reduction from 69.08 minutes to 39.08 minutes for Lead Time. 30 minutes is reduced by 43.4% with the addition of trolleys and operators in the company's operations business.

### Research Result Implication

In the implementation theory, it is seen that Value Stream Mapping can help reduce lead time and cut waste. From previous research comparisons, the average result we get is a decrease in Lead Time, the results can be different due to different amounts of data. However, the results of this study indicate that the results achieved are reduced waiting and unnecessary motion.

### Further Research

VSM can identify the waste that occurs on the production line so that the lead time on production can be minimized to be more effective. The concept of VSM to identify Waste Management researchers conducted further analysis using fishbone diagrams to find out the root causes of waste that make high lead time. Of the problems found were unnecessary movement and waiting, this was explained from the fishbone diagram of the lack of employees and the removal of goods

that were still manual, so the researchers suggested adding personnel and trolleys to assist production processes. From an interview conducted by Agrophoria with Mrs. Desi as Business Development appear that the results provided can help PT TBA to overcome the waste problem that we found, namely unnecessary movement and waiting, according to him, the addition of employees will certainly lead to too long lead times. It also wants to be implemented by Agrophoria Alam Sutra to help the work of existing operators, for the idea of adding a trolley also feels good but is still considered first.

## CONCLUSIONS AND RECOMMENDATIONS

### Conclusions

The conclusions can be described based on the results of data processing and analysis conducted by researchers. On the company's production line with VSM, it was found that the company has waste in unnecessary inventory and unnecessary motion in the checking of raw materials at the beginning of production and unnecessary motion in the process of transporting goods. The main cause of the waste in unnecessary motion is the lack of a means of transporting goods (trolleys) on moving goods. According to the interview (2020) the lack of a means of conveyance causes waste of motion by 15 minutes from the overall lead time of 69.08 minutes. Another factor that is identified is the existence of

unnecessary inventory, the existence of waste is because employees must check the shipment before entering the initial production process. Waste of unnecessary inventory that is encountered is 30 minutes from the total lead time of 69.08 minutes.

The proposed Value Stream Mapping, unnecessary Inventory waste dropped from 30 minutes to 15 minutes and unnecessary motion waste in the transportation process decreased from 15 minutes to 0.

### Recommendations

The researchers proposed process improvement in the company production system using Value Stream Mapping approach. This VSM is required to be carried out on the company's production line due to significant waste in two places the company should employ additional equipment.

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## THE FACTORS AFFECTING EFFICIENCY OF CRUDE PALM OIL IN INDONESIA PALM OIL INDUSTRY

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### Abstract

*This research aim is to determine the factors affecting efficiency of crude palm oil (CPO) in Indonesia by using simple regression (T-partial) and multiple regression (F-simultaneous) analysis through EViews software. The results of this study indicate that partially is the independent variables that affecting Crude Palm Oil (Y) with a T-Statistic value greater than T table (1.65) are the total concession (7.214855), issued capital (2.087724), total investment (6.538604) and total employees (5.167861) with an alpha value of 0.05. While simultaneously, the independent variables that affecting the dependent variable are total concession, authorized capital, issued capital, paid up capital, total investment, total employees with F-statistic value of 16,65554, F table value of 1.94 with alpha value of 0.05 . Therefore, the palm oil industry in Indonesia can improve efficiency and production through maximum use of total concession inputs, issued capital, total investment and total employees.*

**Keywords:** *Affecting, Efficiency, Crude Palm Oil, Simple Regression, Multiple Regression*

### INTRODUCTION

The agricultural sector is one sector that is quite important in Indonesia. This is because the agricultural sector is the second most influential sector on economic growth, after the processing industry (Detik Finance, 2017). This is also supported by data (Kementerian Perindustrian Republik Indonesia, 2017) which explains that the agricultural industry contributes the second highest Gross Domestic Product (GDP) after the non-oil and gas processing industry, which is 13.59% in the first quarter of 2017. Based on occasional paper (Sheil, et al., 2009), expansion of palm oil as an

major driver of economic growth and alternative fuel. In the agricultural sector, the plantation subsector has the potential level where during the 2010-2017 plantation subsector contributed the highest compared to other sub-sectors, amounting to 34.7% (Kementerian Koordinator Bidang Perekonomian, 2019). According to Maygirtasari, Yulianto, & Mawardi (2015) plantations are one of the agricultural sub-sectors that have an important role in development and one of Indonesia's mainstays is palm oil.

Palm oil is a leading commodity in Indonesia and has an important role in economic activities in Indonesia, namely as the largest foreign exchange earner of \$ 24 billion (Rp 298 trillion) in 2017 (Belajartani.com, 2018) and palm oil is also one Indonesia's main export commodity, where palm fruit is an important part of palm oil plants which can be processed

#### ARTICLE INFO

##### Article history:

Received: 12 February 2020

Accepted: 17 April 2020

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into crude palm oil and palm kernel oil. Most of the regions in Indonesia can be utilized as oil palm plantations that produce crude palm oil, but currently production is only available on a few islands, namely Sumatra, Kalimantan and Sulawesi. The growth of Indonesia's crude palm oil production in recent years has increased and is directly proportional to the area of oil palm plantations, even crude palm oil is a product of the plantation subsector which is Indonesia's leading export commodity as the highest crude palm oil producer in the world. The production of crude palm oil is mostly used by food industry, especially in the cooking oil industry, then for non-food such as cosmetics and pharmaceuticals. But those that have a greater market potential are the cooking oil industry.

In Indonesia, people really need cooking oil in the process of food making. Therefore, great potential producers continue to increase their crude palm oil production. Factors affecting crude palm oil production include raw materials, capital and processing machinery. One of the factors of production in operational activities in the palm oil industry is capital which functions to finance every production activity, namely costs incurred or expenses directly related to palm oil production activities, one of which is crude palm oil (CPO) production activities. Costs incurred in this activity are the purchase of boiler chemicals, spare parts, employee wages and so on. Then the raw material is also a determining factor for the production of crude palm oil, namely the supply of fresh fruit bunches, if it does not provide fresh fruit bunches smoothly, then it can hamper the smooth production of CPO (Hermawan, Edison, & Damayanti, 2015) while according to (Septian, 2015) one of the most important factors in the production process is labor, because it acts as a driving force in the production process and in research by (Norhidayu, Nur-Syazwani, Radzil, Amin, & Balu, 2017), labour, capital and the utilization rate have a significant relationship with production of CPO. Therefore the organization / company must be able to use inputs effectively and efficiently. Can be said to be

effective if the company / organization can use resources as well as possible and produce more output than input.

One of the problems in the palm oil industry is technical inefficiency, in (Defrizal, Tan, & Tasman, 2016) research explained that technical efficiency has an important role in increasing the productivity of oil palm and shows that the age of plantations, land ratios, land status, sources seeds and workforce training are significantly related to technical efficiency and according to (Yunikartika, 2016) in 2014 the crude palm oil productivity was only 3.73 tons / ha from the oil palm plantation area of 10.96 million hectares, when compared to other countries namely Malaysia's crude palm oil productivity of 4.82 tons / ha from the oil palm area of 4.5 million hectares. So it can be seen that even though Indonesia is the number one producer of palm oil in the world, Indonesia has not yet used land efficiently, due to its low productivity but the area of plants used is twice as large. This is also support by data indexMundi, palm oil production by country, Indonesia with first rank the highest palm oil production but the annual growth rate with sixth rank, which can be seen in Table 1.

Table 1. *Palm Oil Production by Country (1000 MT)*

Rank	Country	Production (1000 MT)
1	Indonesia	42,500
2	Malaysia	19,800
3	Thailand	3,000
4	Colombia	1,680
5	Nigeria	1,015
6	Guatemala	852
7	Ecuador	630
8	Honduras	580
9	Brazil	540
10	Cote D'ivoire	515

Source: (United States Department of Agriculture, 2019)

Table 2. *Palm Oil Production Annual Growth Rate by Country*

Rank	Country	Production - Annual Growth Rate



1	Ecuador	8.62%
2	Peru	7.22%
3	Thailand	3.45%
4	Colombia	3.38%
5	Brazil	2.86%
6	Indonesia	2.41%
7	Cote D'ivoire	0.19%
8	Liberia	0.00%
9	Mexico	0.00%
10	Benin	0.00%

Source: (United States Department of Agriculture, 2019)

This was also expressed by Joko Suproyono as the Chairperson of GAPKI, although Indonesia is the largest palm oil producing country in the world, but for productivity problems, Indonesia is still less competitive with other producing countries such as Malaysia, Colombia, and Thailand (Okefinance, 2018). Irrespectively from the raw material price, another important factor in production process is the efficiency because this factors have a strongly affect the cost of crude palm oil produced (Sommart & Pipatmanomai, 2011). Issues and challenges of productivity, labour shortage, technology adoption and sustainability need to be addressed fully and in an effective manner in order to ensure that the industry will remain resilient in the future (Nambiappan et al., 2018). Based on these problems, it is necessary to conduct research in order to find out what factors affect efficiency the production of crude palm oil (CPO) in Indonesia by the regression method.

## MATERIALS AND METHODS

The research used in this study consisted of descriptive research types, namely research that focuses on how to solve current problems or actual problems to describe the situation precisely and accurately.

### General Procedure

This research aims to find out what factors affect the production of crude palm oil (CPO) in Indonesia by using a regression analysis method. The method consisting of simple regression and multiple regression analysis. Simple regression is used to determine the

effect of each independent variable on the crude palm oil (CPO) variable which will produce a T-statistic value and a Prob (T-Statistic) value, while multiple regression to find out simultaneously the effect of the independent variable on the crude palm oil variable (CPO) which will produce an F-statistic value and a Prob (F-Statistic) value through EViews software.

## Physical and Spectral Data

This study uses quantitative data in the form of numbers (scores, values) or statements that are valued and statistical analysis that is usually used to prove and reject a theory. The data source used is secondary data that is data that has been collected by other parties and data collected is not only for the purpose of a particular research. The data used for this study came from the Ministry of Agriculture of the Republic of Indonesia or Kementrian Pertanian Republik Indonesia in 2018 as many as 265 company data consisting of 6 independent variables namely total concession, authorized capital, issued capital, paid up capital, total investment, and total employees with 1 dependent variable, namely crude palm oil.

## RESULTS AND DISCUSSIONS

Following are the results and discussion of the partial and simultaneous regression tests in this study through EViews software:

### Simple Regression Analysis (T-Partial)

#### *Effect of total concession ( $X_1$ ) on CPO*

Based on the results of the EViews output, the coefficient of determination or  $R^2$  is 0.165223, so it can be concluded that 16.52% of the Total Concession ( $X_1$ ) variable can explain the CPO variable and the remaining 83.48% is explained by other variables.

#### Hypothesis:

H0: There is no significant effect between Total Concession ( $X_1$ ) on Crude Palm Oil (CPO).

Ha: There is a significant effect between Total Concession ( $X_1$ ) on Crude Palm Oil (CPO).

For the decision of this regression test that is based on the EViews output display shows that the T-Statistic of 7.214855 is greater or equal to 1.65. This is supported by the sigma value (Prob-Tstat) of 0,0000 which is smaller or equal to the value of alpha ( $\alpha$ ) 0.05, from these results then  $H_0$  is rejected.

It can be concluded that there is a significant effect between Total Concession ( $X_1$ ) on Crude Palm Oil (CPO). This was also reported from (Kontan.co.id, 2019), PT Provident Agro Tbk (PALM) which suffered a substantial loss in 2018, Finance Director of PT Provident Agro Tbk, Devin Antonio said the loss was inseparable from the land divestment carried out by PALM also reduced the production of Crude Palm Oil (CPO) produced by PALM.

Simple regression equation:

$$Y_2 = a + bX_1$$

$$Y = -1.348726 + 0.342245 X_1.$$

That is, if the Total Concession ( $X_1$ ) rises by 1 point, the Crude Palm Oil has an increase of 0.344245. If the Total Concession ( $X_1$ ) drops by 1 point, Crude Palm Oil decreases by 0.344245. Moreover, if the Total Concession ( $X_1$ ) is worth 0, then Crude Palm Oil will be worth -1,348726.

#### *Effect of Authorized Capital ( $X_2$ ) on CPO*

Based on the results of the EViews output, the coefficient of determination or  $R^2$  is 0.009979, so it can be concluded that 0.99% of the Authorized Capital ( $X_2$ ) variable can explain the Crude Palm Oil (CPO) variable and the remaining 99.01% is explained by other variables.

Hypothesis:

$H_0$ : There is no significant effect between Authorized Capital ( $X_2$ ) on Crude Palm Oil (CPO)

Ha: There is a significant effect between Authorized Capital ( $X_2$ ) on Crude Palm Oil (CPO)

For the decision of this regression test that is based on EViews output display shows that the T-Statistic of 1.628197 is smaller or equal to 1.65 (T table). This is supported by the sigma value (Prob-Tstat) of 0.1047 which is greater or equal to the alpha value ( $\alpha$ ) of 0.05, from the results,  $H_0$  is accepted. So it can be concluded that there is no significant effect between Authorized Capital ( $X_2$ ) on Crude Palm Oil (CPO).

Simple regression equation:

$$Y_2 = a + bX_1$$

$$Y = -3.231100 + 0.032336 X_2.$$

That is if the Authorized Capital ( $X_2$ ) rises by 1 point, the Crude Palm Oil has an increase of 0.032336. If Authorized Capital ( $X_2$ ) drops by 1 point, Crude Palm Oil decreases by 0.032336. If Authorized Capital ( $X_2$ ) is worth 0, Crude Palm Oil will be worth -3,231100.

#### *Effect of Issued Capital ( $X_3$ ) on CPO*

Based on the results of the EViews output, the results show that the coefficient of determination or  $R^2$  is equal to 0.016302 so it can be concluded that 1.63% of the Issued Capital variable ( $X_3$ ) can explain the Crude Palm Oil (CPO) variable and the remaining 98.37% is explained by other variables.

Hypothesis:

$H_0$ : There is no significant effect between Issued Capital ( $X_3$ ) on Crude Palm Oil (CPO).

Ha: There is a significant effect between Issued Capital ( $X_3$ ) on Crude Palm Oil (CPO).

For the decision of this regression test that is based on the output view EViews shows that the T-Statistic of 2.087724 is greater or equal to 1.65 (T-table). This is supported by the sigma (Prob-Tstat) value of 0.0378 which is smaller or equal to the alpha value ( $\alpha$ ) of 0.05, from this result the  $H_0$  is rejected. It can be concluded that there is a significant effect between Issued Capital ( $X_3$ ) on Crude Palm Oil (CPO).

Simple regression equation:

$$Y_2 = a + bX_1$$

$$Y = -3.256787 + 0.036473 X_3.$$

If Issued Capital ( $X_3$ ) rises by 1 point then Crude Palm Oil has an increase of 0.036473. If Issued Capital ( $X_3$ ) drops by 1 point, Crude Palm Oil decreases by 0.036473. And if Issued Capital ( $X_3$ ) is worth 0, Crude Palm Oil will be worth -3,256787.

#### *Effect of Paid Up Capital ( $X_4$ ) on CPO*

Based on the results of the EViews output, the results show that the coefficient of determination or  $R^2$  is 0.009895 so it can be concluded that 0.98% of the Paid Up Capital variable ( $X_4$ ) can explain the Crude Palm Oil (CPO) variable and the remaining 99.02% is explained by other variables.

Hypothesis:

$H_0$ : There is no significant effect between Paid Up Capital ( $X_4$ ) on Crude Palm Oil (CPO).

$H_a$ : There is a significant effect between Paid Up Capital ( $X_4$ ) on Crude Palm Oil (CPO).

For the decision of this regression test that is based on the EViews output display shows that the T-Statistic of 1.621204 is smaller or equal to 1.65 (T table). This is supported by the sigma value (Prob -Tstat) of 0.1062 which is greater or equal to the alpha value ( $\alpha$ ) of 0.05, from this result,  $H_0$  is accepted. So it can be concluded that

there is no significant effect between Paid Up Capital ( $X_4$ ) on Crude Palm Oil (CPO).

Simple regression equation:

$$Y_2 = a + bX_1$$

$$Y = -3.201650 + 0.031176 X_4.$$

If Paid Up Capital ( $X_4$ ) rises by 1 point, CPO has an increase of 0.031176. If Paid Up Capital ( $X_4$ ) drops by 1 point, Crude Palm Oil (Y) decreases by 0.031176. If Paid Up Capital ( $X_4$ ) is 0, then Crude Palm Oil (Y) will be worth -3,201650.

#### *Effect of Total Investment ( $X_5$ ) on CPO*

Based on the results of the EViews output, the results show that the coefficient of determination or  $R^2$  is 0.139830 so it can be concluded that 12.98% of the Total Investment ( $X_5$ ) variable can explain the Crude Palm Oil (CPO) variable and the remaining 86.02% is explained by other variables.

Hypothesis:

$H_0$ : There is no significant effect between Total Investment ( $X_5$ ) on Crude Palm Oil (CPO).

$H_a$ : There is a significant effect between Total Investment ( $X_5$ ) on Crude Palm Oil (CPO).

For the decision of this regression test that is based on the output display EViews shows that the T-Statistic of 6.538640 is greater or equal to 1.65 (T-table). This is supported by the sigma value (Prob-Tstat) of 0.0000 which is smaller or equal to the alpha value ( $\alpha$ ) of 0.05, from these results then  $H_0$  is rejected.

It can be concluded that there is a significant effect between Total Investment ( $X_5$ ) on Crude Palm Oil (CPO). This is because the Director General of the Ministry of Industry Agro Industry, Panggah Susanto, said the downstream investment is driving the export of downstream CPO products

from 30% of the total national palm production to 70%. This shows the benefits of industrial downstream instruments increasing the volume and value added of exported goods as the Secretary General of the Indonesian Palm Oil Association (GAPKI), Joko Supriyanto, said investment in the downstream CPO sector continues to grow. At least 10 palm oil plantation companies in Indonesia expanded to the downstream sector by building downstream factories worth a total of 5 trillion rupiahs (Kemenprin RI, 2014).

Simple regression equation:

$$Y_2 = a + bX_1$$

$$Y = -2.450073 + 0.2322713.$$

If the Total Investment ( $X_5$ ) increases by 1 point, the Crude Palm Oil has an increase of 0.2322713. If the Total Investment ( $X_5$ ) drops by 1 point, Crude Palm Oil decreases by 0.2322713. And if the Total Investment ( $X_5$ ) is 0, then Crude Palm Oil will be worth - 2,450073.

#### *Effect of Total Employees ( $X_6$ ) on CPO*

Based on the results of the EViews output, the results show that the coefficient of determination or  $R^2$  is 0.092186 so it can be concluded that 9.21% of the Total Employees ( $X_6$ ) variable can explain the Crude Palm Oil (CPO) variable and the remaining 90.79% is explained by other variables.

Hypothesis:

$H_0$ : There is no significant effect between Total Employees ( $X_6$ ) on Crude Palm Oil (CPO).

$H_a$ : There is a significant effect between Total Employees ( $X_6$ ) on Crude Palm Oil (CPO).

For the decision of this regression test that is based on the EViews output display shows that the T-Statistic of 5.167861 is

greater or equal to 1.65 (T table). This is supported by the sigma value (Prob T-stat) of 0.0000 which is smaller or equal to the alpha value ( $\alpha$ ) of 0.05, from this result,  $H_0$  is rejected. It can be concluded that there is a significant effect between Total Employees ( $X_6$ ) on Crude Palm Oil (CPO). This is because according to (Gabungan Pengusaha Kelapa Sawit Indonesia, 2017) the number of workers in the palm oil industry has increased from year to year and based on data (Sawit Indonesia, 2018) that the number of workers in the palm oil plantation sector for CPO has also increased.

Simple regression equation:

$$Y_2 = a + bX_1$$

$$Y = -1.598990 + 0.202309 X_6.$$

If the Total Employees ( $X_6$ ) increase by 1 point, the Crude Palm Oil has increased by 0.202309. If the Total Employees ( $X_6$ ) decrease by 1 point, the Crude Palm Oil will decrease by 0.202309. And if the Total Employees ( $X_6$ ) are worth 0, then Crude Palm Oil will be worth -1,598990.

#### **Multiple Regression Analysis (F-Simultaneous)**

Based on the results of the EViews output, the results show that the coefficient of determination or  $R^2$  is 0.279316 so it can be concluded that 27.93% of the variable Total Concession ( $X_1$ ), Authorized Capital ( $X_2$ ), Issued Capital ( $X_3$ ), Paid Up Capital ( $X_4$ ), Total Investment ( $X_5$ ), and Total Employees ( $X_6$ ) can explain the Crude Palm Oil (CPO) variable and the remaining 72.07% is explained by other variables.

Hypothesis:

$H_0$ : There is no significant effect between Total Concession ( $X_1$ ), Authorized Capital ( $X_2$ ), Issued Capital ( $X_3$ ), Paid Up Capital ( $X_4$ ), Total Investment ( $X_5$ ), and Total Employees ( $X_6$ ) on CPO.

Ha: There is a significant effect between Total Concession ( $X_1$ ), Authorized Capital ( $X_2$ ), Issued Capital ( $X_3$ ), Paid Up Capital ( $X_4$ ), Total Investment ( $X_5$ ), and Total Employees ( $X_6$ ) on CPO.

For the decision of this regression test that is based on the output view EViews shows that the F-stat is 16.66554 which is greater or equal to 1.94 (F-table). This is supported by the sigma value of 0.0000 which is smaller or equal to 0.05 ( $\alpha$ ), from this result,  $H_0$  is rejected. It can be concluded that there is a significant effect between Total Concession ( $X_1$ ), Authorized Capital ( $X_2$ ), Issued Capital ( $X_3$ ), Paid Up Capital ( $X_4$ ), Total Investment ( $X_5$ ), and Total Employees ( $X_6$ ) on CPO.

Multiple regression equation:

$$Y_3 = a + bX_1 + cX_2 + dX_3 + eX_4 + fX_5 + gX_6$$

$$Y = -1.501984 + 0.250171 X_1 - 0.058403 X_2 + 0.162526 X_3 - 0.051264 X_4 + 0.80254 X_5 + 0.065394.$$

If the Total Concession ( $X_1$ ), Authorized Capital ( $X_2$ ), Issued Capital ( $X_3$ ), Paid Up Capital ( $X_4$ ), Total Investment ( $X_5$ ), and Total Employees ( $X_6$ ) increases by 1 point, then Crude Palm Oil (CPO) an increase of 0.548678. If the Total Concession ( $X_1$ ), Authorized Capital ( $X_2$ ), Issued Capital ( $X_3$ ), Paid Up Capital ( $X_4$ ), Total Investment ( $X_5$ ), and Total Employees ( $X_6$ ) drops by 1 point, then Crude Palm Oil (CPO) experiences a decrease of -0.548678. If Total Concession ( $X_1$ ), Authorized Capital ( $X_2$ ), Issued Capital ( $X_3$ ), Paid Up Capital ( $X_4$ ), Total Investment ( $X_5$ ), and Total Employees ( $X_6$ ) is 0. then Crude Palm Oil (CPO) will be worth amounting to -1.501984.

## CONCLUSIONS AND RECOMMENDATIONS

From the research results and analysis results of crude palm oil data processing consisting of 265 companies, the factors affecting crude palm oil in Indonesia with a partial regression test are total concession,

issued capital, total investment and total employees. While for the simultaneous regression test, all independent variables have an influence on crude palm oil (CPO).

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## THE MENACE OF COVID-19: SURVIVAL STRATEGIES FOR SMALL AND MEDIUM SCALE ENTERPRISES IN NIGERIA

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### Abstract

*Small and Medium Enterprises (SMEs) have been considered as the engine of economic growth and for promoting equitable development all over the world. The Corona virus disease (COVID-19) pandemic has caused unprecedented panic, disruptions and losses for businesses. This is why this paper investigates the survival strategy for Small and Medium Enterprises (SMEs) in Nigeria after COVID-19 pandemic. The concept of Small and Medium Enterprises, history and advances of COVID-19 pandemic in Nigeria, Small and Medium Scale SMEs capacity building in Nigeria, government's response to the pandemic: a global perspective and steps SMEs must take to survive post COVID-19 were discussed. The study concluded that there is no gainsaying that Small and Medium Enterprises (SMEs) are the backbone of any economy globally. This subject has been resounded everywhere throughout the world! The time is now to step up and do what we all know is the appropriate course of action. The paper recommended among others that Small and Medium Enterprises (SMEs) should approach commercial banks, or the Bank of Industry for loans to keep them afloat, at reduced interest rates.*

**Keywords:** *Small and Medium Enterprises, COVID-19, Capacity Building and Strategy*

### INTRODUCTION

Recently, many small and medium-sized enterprises (SMEs) have suffered dramatic losses due to the Corona virus disease (Covid-19) pandemic in the world as well as in Nigeria

in particular. The Covid-19 pandemic triggered unparalleled chaos, damage and devastation to both the public and private sectors. The crisis is seen as an existential threat to the global economy, with governments and corporations struggling with the consequences. There has been increasing apprehension of the potential impact of the pandemic, particularly on small and medium-sized enterprises (SMEs). Although the health impact of the crisis is significant, the economic impacts are no less

#### ARTICLE INFO

##### Article history:

Received: 20 March 2020

Accepted: 18 May 2020

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devastating, particularly for businesses (Falokun, 2020).

More than 1.3 million people worldwide have been infected by the novel Coronavirus or COVID-19. Probably for the first time in many decades, the world is experiencing a form of disease that does not discriminate on the basis of age, gender or even ethnicity. The virus originated in the Wuhan province of China and has since spread to all parts of the world (WHO, 2020). The disease has been described by health authorities as infectious and contagious. As a result, both the World Health Organization (WHO) and governments have urged their people to practice good hygiene by washing their hands with soap and running water or even alcohol-based hand sanitizers, by keeping their nose and mouth covered with a mask.

Small and medium-sized enterprises (SMEs) have remained a common expression in the business world, and thus hold a place of pride in virtually every country in the world economy. This is due to the significant position of small and medium-sized enterprises as the mainstay of economic activity in terms of jobs generation, national growth, poverty reduction and the economic development of global economies, including Nigeria. For cities and towns, these businesses employ a significant percentage of the population. According to Kadiri (2012) cited in Peterise (2003), over 60 per cent of the workforce in Nigeria were employed by SMEs in both the formal and informal sectors. Worse than that, 70 to 80 per cent of the country's everyday needs are not high-tech goods, but simple materials manufactured with little to no automation. Records have shown that small and medium-sized enterprises have provided a mechanism in many countries to promote private ownership and entrepreneurial skills, increase job opportunities per unit of capital invested, and help the growth of local technology (Sule, 1986; World Bank, 1995).

To support the previous view, Ajose (2010) argues that small and medium-sized enterprises are the center of economic development and the first point of touch for

the business world, but Covid-19 has had a major effect on business operations. Small and medium-sized businesses help drive investment savings and encourage the use of local raw materials. We help to diversify economic development and make a major contribution to exports and trade. Small and medium-sized enterprises are also critical for poverty reduction, as they tend to employ poor and low-income employees and are often the source of jobs in rural areas and poor regions. In addition, by manufacturing intermediate goods for use in large enterprises, small and medium-sized enterprises are contributing to the strengthening of industrial relations. This explains the growing interest shown by developed countries in supporting small and medium-sized enterprises since the 1970s (Ekpenyong and Nyong, 1992). According to Bonga (2010), many economies have lagged behind in promoting small and medium-sized enterprises and missed the benefits they bring to a nation due to COVID-19.

The Covid-19 pandemic created crucial challenges for small and medium-sized enterprises (SMEs) in Nigeria, forcing many to change their attention from daily operations to crisis management and alternative business response efforts. The effect is already visible in the areas of sales/services, initiatives to minimize adverse effects, prospects, threats, support measures and company survival prospects (Falokun, 2020). In addition, too many small and medium-sized businesses have finished their programs due to COVID-19 pandemic.

## **LITERATURE REVIEW**

### **Concept of Small and Medium Enterprises**

Small companies include a wide variety of industries. It includes sole ownership or entrepreneurship, family enterprises and partnerships, and may be incorporated or unincorporated. The term also includes professionals such as accountants, lawyers, doctors, engineers and architects who are self-employed. Others are vehicle repairers and roadside servicemen commonly recognized as "roadside mechanics" in Nigeria.



Unlike several other words in the social sciences, the word "small business" challenges a specific description. Ekpeyong and Nyong (1992) observed that, due to the arbitrary classification of small and large enterprises, there is hardly any special, widely agreed concept of small and medium-sized enterprises. Egbuogu (2003) noted that concepts of small and medium-sized enterprises differ between countries and continents. According to Carpenter (2003), the main requirements in the description may include different combinations of the following: number of workers, financial ability, market volume, relative size, initial capital outlays and categories of industry. To Inang and Ukong (1992), the size of the capital expenditure (fixed assets), the amount of the annual turnover (gross output) and the number of paying employees are main measures in most definitions.

In countries such as the United States of America, the United Kingdom and Canada, small and medium-sized companies are characterized in terms of annual turnover and the number of paying employees. In Britain, for example, a small and medium-sized business is defined as a business with an annual turnover of GBP 2 million or less with less than 200 paid employees. Akabueze (2002); SMEIS (2002); Sanusi (2003); Udechukwu (2003); and Sanusi (2004) pointed out that the Nigerian concept of small and medium-sized enterprises also varies, but the Central Bank of Nigeria (CBN) agrees with the Small and Medium Industries and Equity Investment Scheme (SMEIS) on the classification of small and medium-sized enterprises as a maximum asset base not less than N200 million (equivalent to \$1.43 million) except L.

For certain ways, they have all been unsatisfactory. That was mainly due to the complex nature of various sectors. A firm in one industry may be large relative to its competitors but small in terms of employment, assets and sales compared to firms in other industries; or vice versa. In other cases, the company can be small on the basis of jobs and high in assets and revenue, or vice versa. In

addition, size levels expressed in monetary terms, such as sales and valuation of assets, frequently need to be adjusted during inflation to represent increases in the value of sales and assets.

Balunywa (2010) argued that the number of employees may not be a good indicator, particularly where labor intensive is a policy approach to industrialisation. Nevertheless, it is not to suggest it, in some situations, the trading company is not capable of trading big business, but only has few workers. Under that case, capital employed can be used as an proxy for the concept of small and medium-sized enterprises.

### **Overview of COVID-19 Pandemic in Nigeria**

The COVID-19 pandemic in Nigeria is part of the global Coronavirus Disease Pandemic 2019 (COVID-19) caused by extreme acute coronavirus 2 respiratory syndrome (SARS-CoV-2). The first confirmed case in Nigeria was revealed on 27 February 2020 when Italian people tested positive for the SARS-CoV-2 virus in Lagos (Maclean and Dahir, 2020). A second case of the virus was registered on 9 March 2020 in Ewekoro, Ogun State, a Nigerian citizen who had contact with an Italian citizen.

On 28 January, Nigeria's Federal Government told people of the country that it was prepared to improve surveillance at five international airports in the country in order to prevent coronavirus spread. The Government has confirmed airports such as Enugu, Lagos, Rivers, Kano and FCT. The Nigeria Center for Disease Control (NCDC) also announced on the same day that it had already set up a coronavirus community and that it was ready to trigger its incident program if any event occurred in Nigeria (Odunsi, 2020).

On 31 January, following the emergence of the COVID-19 pandemic in mainland China and other countries around the world, the Federal Government of Nigeria set up a Coronavirus Preparedness Committee to minimize the effect of the virus if it inevitably spreads to the nation (Ifijeh, 2020). On the same day, Nigeria, among 13 other African nations, was listed as a high risk of transmission of the virus by the

World Health Organization (Ezigbo and Ifijeh, 2020). On 26 February, a Chinese citizen introduced himself to the state government of Lagos on suspicion of coronavirus infection. He was admitted to Reddington Hospital and was released the next day after negative tests (Ezigbo and Ifijeh, 2020).

### **Small and Medium Enterprises (SMEs)**

#### **Capacity Building in Nigeria**

Recognizing the considerable contribution of small and medium-sized enterprises to the economy of the country, the policies and initiatives to promote the creation of small and medium-sized enterprises are prominent in most of the government's economic development plans with a view to fostering further growth in the sector. In the last decade, a clear path to accelerate the growth of small and medium-sized enterprises has been mapped out through the establishment of agencies such as DFRRI, NDE, NAPEP, etc., although the obstacles before this establishment are daunting (Ogwuma, 1995).

The state-led industrialization models followed immediately after Nigeria's independence in 1960, and the 1970s and 1980s were a major factor restricting the development of small and medium-sized enterprises. There are many ways in which industrialization has discriminated against small and medium-sized businesses over time.

First, trade was regulated in a manner that followed large firms to obtain import licences, official import exchange rates, and tariff rebates more easily than small firms. The anti-export prejudice created by import substitution policies often discriminated against concentrated small and medium-sized enterprises. In addition, small businesses were denied access to most investment opportunities due to high rent-seeking costs.

Second, activities by the financial sector have also discriminated against small and medium-sized enterprises. Selective credit controls, coupled with controlled interest rates, prevented banks from paying higher-cost small loans by charging more. As a result, insufficient credit was distributed to small

companies, enabling large firms to expand at the expense of small firms.

Thirdly, the challenges of coping with government regulations and tax authorities are more weighted smaller companies in terms of higher enforcement costs, i.e. the fixed costs of complying with import/export and tax legislation, labor market legislation and licensing and price controls.

Fourth, Nigeria's underdeveloped physical and social infrastructure is a binding constraint on small and medium-sized enterprises' growth. Small and medium-sized businesses depend heavily on inefficiently supported state infrastructures, such as electricity and water, and can not afford to build any alternatives. Likewise, inadequate investment in human resources hinders the growth of SMEs due to the lack of skilled employees, managers and entrepreneurs (Tendler and Amorim 1996).

In a more demanding world, small and medium-sized businesses are conscious of the need to become more resilient and efficient in the face of economic change. Continuous changes in the business environment, due to the globalization process and technological innovations, are forcing small and medium-sized enterprises and other organizations in Nigeria to constantly seek new competitive advantages in order to maintain and improve their market position (Aremu 2004). To this end, policy efforts should be geared towards strengthening small and medium-sized enterprises, thereby encouraging domestic investment and fostering economic growth.

### **Governments Response to the COVID-19 Pandemic: A Global Perspective**

Unlike other crises such as the 2008 Global Financial Crisis, governments responded by legislation, fiscal stimulus and monetary policy measures. For example, in the United States, funds have been allocated to every household paying tax in the range of \$1,000 – \$1,200 or so. The purpose of this stimulus test is to boost aggregate demand and supply powers, because companies in all sectors have been forced to stop working. This means countless job losses, as recently reported by the US Department of

Labor; (the same happens in Nigeria) a total of 6 million claims have been made, the largest jobless claim ever! Apart from incentive restrictions on families, legislation such as the Corona Virus Bill is currently going through the legislature. The Federal Reserve Bank has been introduced on the monetary side! The Fed reduced the rate to 0 per cent and introduced a \$700 billion quantitative easing plan.

In other parts of the Western world, the same methods and tactics are being used to achieve full effect. In the euro area, the European Central Bank has tried to combine fiscal measures between its member countries, but some countries believe that the deal has not gone far enough. As a result, the talks brought the two major players in the region (Germany and France) into recession territory. Of course, if Germany sneezes, nearly every nation in the world will catch a cold. On the other hand, in developing countries where liquidity is often constrained, the same instruments are being deployed in addition to the use of multiple approaches, such as the request for loans from multilateral agencies such as the World Bank and the International Monetary Fund, to increase the budgets of developing countries so that they can fight the pandemic and emerge much stronger. The Nigerian Government has made it clear that households will earn a stipend during this period of considerable uncertainty. While the aim is important, like most countries around the world, the implementation process can be sluggish to meet the most disadvantaged people.

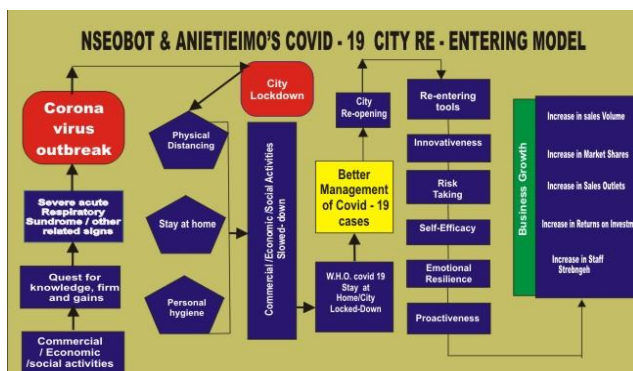


Figure 1. Nseobot & Anietieimo's COVID-19

## City Re-Entering Model (2020)

Nseobot & Anietieimo's COVID-19 City Re-Entering Model idea, as represented in Nseobot & Anietieimo's work 2020, focuses primarily on how individuals, group of persons, corporation organizations etc. can recover from the unfriendly and harsh economic weather around the world to continue in businesses operation. Their model concepts of work simply implies a well thought out plan that presents a sequential or orderly manner by which process of city re-entering process that will help businesses.

The emergence of coronavirus is the product of discovery, a search for information, either for profits or for firms that led to the coronavirus outbreak (Covid-19). This disease belongs to the pathogen family that causes severe acute respiratory syndrome (SARS) that can be easily contacted by another person. Various strategies and methods are used to control the spread of the virus, which have adversely impacted economic activities around the world. The spread of the virus has now altered the traditional way of life and industry around the world; companies needing physical contact could be pushed out of the market. As part of measures to curb the spread of covid-19, governments across the globe have introduced a locked-in city to achieve the "Stay at Home" initiative. In the words of Umoh, Nseobot, Hamid, Elyassami, Effiong, Ette, & Soomro (2020) lockdown is a security measure that prevents an individual or group of persons from leaving or entering a building, place, venue, country by air, land, water, etc. in the emergency, e.g. COVID-19. This method of containment is used to eliminate the risk of spreading the virus in society. If the city has to be re-opened for entry and continuous commercial, economic and social activities, there must be evidence of better management of the cases of COVID-19 in the affected nations, there must be a downward slope in the curve of newly confirmed cases and death. Then, we may assume that there is better control of the COVID-19 events.

The re-opening of the city for activities is followed by a change in activities and operations, where business owners/managers must try to hold on to their market shares, there must be an adequate mental re-orientation to adjust to the changing situation. City re-entry methods are a mental orientation and a prepared strategy for business owners/managers to enter post-covid-19 society. Re-entry resources include creativity, risk-taking, self-efficiency, mental endurance and pro-activeness. Innovativeness is an innovative thinking that gives rise to new concepts, technologies, goods, markets, strategies and processes that produce a better outcome that meets new requirements and challenges. Innovation upon acceptance would offer the company concerned competitive advantages over its rivals. Post Covid-19 companies must take calculated risks in order to gain advantages, instead of taking risks that would have a proportionate impact on the overall performance of the company. Typical risk-taking components included but limited to pouring money into a course of action, borrowing, taking action in the face of uncertainty, e.g. COVID-19, as well as investing funds in a company with little to no technological expertise to awareness. Post COVID-19 company owners or managers with new creative concepts and blue risk printing should have emotional resilience, which is also seen as the degree to which a person trusts in his or her ability to execute tasks or clear goals effectively, given challenging circumstances and limited resources. After the implementation of the new creative concept and taking all the risk measured, some of the results the go out of proportion, or even not, to the efforts of the company. Therefore, the need to develop emotional resilience in order to stay competitive in the market in the midst of their dropping aspirations, emotional resilience is the capacity of the company to adapt to stressful and awful situations and incidents in the process of operating and managing business operations. The practice of emotional resilience should lead to a constructive spirit among post-covid-

19 firms that will enable company activities to escape potential obstacles, requirements and improvements that are necessary for the identification and judgment of new opportunities. In short, companies that successfully used the city re-entry model will experience business growth that includes increased revenue, return on investment, increased distribution channels, increased market shares, and increased staff strength. COVID-19 City re-opening business climate will be characterized by a lot of uncertainties and aspirations, survival and development in this turmoil climate, success-oriented sector, government, non-profit making organization and families are strongly advised to adopt and continue the above model.

## **RESULTS AND DISCUSSIONS**

### **COVID-19 Survive Strategies for Small and Medium Scale Enterprises in Nigeria**

When business owners seek to shield their companies from investment, they need to look out for risks, returns on investment, timeline of investment, and history of issuers. In an interview with Ugodre Obi-Chukwu, the founder of Nairametrics noted that It is essential for every small and medium-sized enterprise (SMEs) that wants to survive the coronavirus pandemic to source raw materials locally (Okwumbu, 2020). This is particularly important as foreign exchange will remain volatile for a long time after the pandemic, affecting businesses that depend on imported materials for their production. Ugodre suggested this while speaking at the Instagram live session with Ore Ajayi of United Capital Plc, the theme of "Hedging Your Company with Right Investments Post-COVID-19." According to Okwumbu (2020), foreign exchange volatility could lead to increased production costs for companies, making it even more difficult for them to maintain their market share of the economy.

"We were in a tough position as a nation before COVID-19. The government 's revenue was down. Oil prices started to decline by the end of 2019. We had an economy where the

government did not finance the budget, so we needed to borrow," he explained.

Okwumbu (2020) proposed that foreign exchange purchases could be explored, but investing in dollar reserves, foreign stocks, and bonds would be safer ways to help companies offset the effect of increasing inflation and naira depreciation.

### **Renegotiate Loans and Remain Liquid**

As things get tougher in post-COVID-19, it will be expedient for companies to remain liquid and set aside some emergency funds. Small and medium-sized businesses will consider renegotiating loan repayment terms with bank partners so that facilities are not repaid at the cost of keeping afloat. This also proposed that small and medium-sized businesses would be able to approach commercial banks or the Bank of Industry for loans to keep them afloat at discounted interest rates.

### **Using the technology-driven investment platforms**

During a time when the world is gravitating towards technology, SMEs must find technology-driven investment platforms to operate and manage their investments.

Responding to the question of platforms to be explored, Ore Ajayi, the host of the session, noted that small and medium-sized enterprises and individual investors need to move away from looking for walk-in investment platforms and explore digitally-driven platforms.

"You need to use technology to fulfill your investment needs. Platforms like Invest now, which is fuelled by United Money, could be a major one to leverage at this time," he said. Investments to Watch Out.

Ugodre also emphasized that, when business owners seek to protect their companies from investment, they must look out for risks, return on investment, timeframe of investment, and history of issuers. "Tread your investments carefully. Picture the world 10 years from now, and imagine what kind of company will look like then. Let this guide your

investments. Those who identify this are the ones who will win," he said.

### **CONCLUSIONS AND RECOMMENDATIONS**

There is no indication that small and medium-sized enterprises (SMEs) are the cornerstone of any economy in the world. This subject has resounded all over the world. Now is the time to step up and do what we all think is the right course of action. Government funding for small and medium-sized enterprises is very important at this time of the pandemic. Simply put, this part of the economy is the largest and, believe it or not, is one of the country's biggest employers of labour. Consider this, if the small and medium-sized sector of the economy collapses, that is to say, 25% of small and medium-sized enterprises cannot recover from the COVID-19 pandemic, then we are inches away from permanent social and maybe economic unrest due to an increase in overall unemployment, particularly among young people.

The research results also come along with brief recommendations. Small and Medium Enterprises (SMEs) should approach commercial banks, or the Bank of Industry for loans to keep them afloat, at reduced interest rates. Government should give free tax year for Small and Medium Enterprises to recoup from their losses due to COVID 19. Small and Medium Enterprises should device means of reducing the price of products to curtail total losses. SMEs operators should device effective marketing strategies such as creative personal selling, customer-oriented product lines or services, adroit advertising and good business location, which all enhance smooth and profitable business operations.

### **Declaration of Conflicting Interests**

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

### **Funding**

The author(s) received no financial support for the research, authorship, and/or publication of this article.

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## COVID-19 - AFFECTING MALNUTRITION IN INDIA

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### Abstract

*Covid-19 has posed bizarre challenges for all over the world including India. Though the number of patients suffering with Covid-19 is small compared to many other countries, still the Covid-19 has smacked the already going on scuffle with unemployment and malnutrition in India. The human race slept in a different world and woke up in a world affected and feared with Covid-19. No one was prepared for such a pandemic. The hasty multiplication of corona virus affected patients changed the world massively. By the time its horrific effect is realized, it has already spread world over. Though, the effect of Covid -19 is not time bound or geographically limited but its impact on mankind, livelihoods, health and mindsets is going to be everlasting.*

**Keywords:** COVID-19, India, Malnutrition

### INTRODUCTION

COVID-19 has smacked the already going on scuffle with unemployment and malnutrition in India. No one was prepared for such a pandemic. By the time, its horrific effect is realized; it has already spread the world over. Though, the effect of COVID -19 is not time bound or geographically limited but its impact on mankind, livelihoods, health and mindsets is going to be everlasting. India combating an already prevalent complex burden of poverty, malnutrition, hunger, lifestyle and infectious diseases has to face multiple challenges in taking care of its people. India is a highly populated country. Presently, India stands 2nd worldwide with 17.71% share of world population. Malnutrition is a major concern globally. As reported in the 2011 census among the 472 million children, 97 million are anaemic and undernourished in India. Anaemia is

prevalent among 51.4% of women of reproductive age (UNICEF, 2019). Imbalanced diets, meal patterns, faulty food choices and habits, poor sanitation not only affect the immunity adversely but also make a person susceptible to infections and other diseases. The long term effects of COVID-19 may result in complex problems affecting all the age groups. The effects may not be limited to employment, economy, mindsets, decision making, purchasing power, decision making, globalization, urbanization and way of life but also on the nutrition status of all the age groups. As the situation due to COVID -19 may last longer, nutritional care is important.

India combating with already prevalent complex burden of poverty, malnutrition, hunger, lifestyle and infectious diseases has to face multiple challenges in taking care of its people. India is a highly populated country. Presently, India stands 2<sup>nd</sup> worldwide with 17.71% share of world population. The 2019 population density in India is 460 people per Km<sup>2</sup>. Today, the 26.16 % population in India is in the age group of 0-14 years and 10.12% in the age group of more than 60 years. The major share of active population in India is 15-

### ARTICLE INFO

#### Article history:

Received: 14 April 2020

Accepted: 10 June 2020

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59 years is 63.72 %. To handle the Covid-19 situation with a colossal and dense population most effectively, the Government of India has taken extraordinary courageous, meticulously planned steps. A historical decision to lockdown the entire country of the 2nd largest population, with a huge number of below poverty line people resulted in a lesser number of COVID-19 affected people and deaths so far.

Malnutrition is a major concern globally. The situation of malnutrition in India is also grim. Malnutrition, according to the World Health Organization (WHO), refers to deficiencies, excesses, or imbalances in a person's intake of energy and/or nutrients. Food security, as defined by the United Nations' Committee on World Food Security, means that all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their food preferences and dietary needs for an active and healthy life. The data from National and International organizations like WHO, National Health & Family Survey, United Nations International Children's Emergency Fund, all draw attention towards the tremendous burden of malnutrition in India among children, adolescent girls, pregnant and lactating women. Malnutrition vexes the lives of millions of children every year. As reported in the 2011 census among the 472 million children, 97 million are anemic and undernourished. The adequate diet intake is only by 9.6% children in the age group of 6-23 months (NFHS 4, 2015-16). 21% of the children in the country suffer from wasting i.e one in five children (NFHS 4, 2015-16). The enormous burden of anemia is prevalent in India among 58% of children between the age of 6 months to 5 years (NFHS 4, 2015-16). Majority of the already malnourished children, pregnant mothers and lactating mothers from the vulnerable sector may be deprived of benefitting from ongoing supplementary nutrition programmes due to closure of all the activities during lockdown which may increase the number of severely malnourished.

## LITERATURE REVIEW

UNICEF informed in its report that due to reduction in routine health services coverage and increased in child wasting, a staggering, 1.2 million additional children under five could die in just six months in low and middle-income countries (Daya, 2020). Anemia is prevalent among 51.4% of women of reproductive age (UNICEF, 2019). India's adult population also contributes towards the malnutrition burden. Factors responsible for malnutrition in the country among children and women include mother's nutritional status, lactation behavior, women's education, and sanitation. The factors affecting malnutrition among the adult population include lifestyle diseases, obesity, stress, erratic work hours, poor diets, lack of awareness and switching our Indian *thali* (plate) with processed foods. The lockdown as a preventive measure to combat with transmission of coronavirus has been successful to reduce the infection transmission but it has many after affects. The problem of malnutrition may aggravate multifold with the suspension of outreach activities under various health programmes including closure of ananganwadi centres and mid-day meal program. Reyes, 2010 reported that during influenza pandemic in the year 2009 chronic malnutrition contributed to the high morbidity and mortality in Guatemalan children. In the twenty first century, under nutrition is one of the major a problem for viral pandemic. Malnutrition is associated with mortality in younger population and high disease severity. Under nutrition and over nutrition may pose a "double burden" of malnutrition and increase the severity of disease (Short et.al. 2018).

Coronavirus induce pulmonary infection termed as neo-coronavirus pneumonia (Song, 2020). There is no effective specific drug treatment in clinical practice. Guan, 2019 in his study reported that in elderly patients suffering from coronavirus, gastrointestinal symptoms are the most common in addition to respiratory symptoms. The most common symptoms observed in elderly are diarrhea, mild abdominal pain, nausea, and vomiting, poor appetite. The involvement of the

digestive tract may accelerate the incidence of malnutrition in elderly patients with COVID-19. The main symptoms of corona virus are common cold, fever and headache. Common cold is a disease that has never had a cure nor any effective prevention or vaccine. Many studies suggest that the risk of contracting the common cold is higher among malnourished, under inadequate sleep and psychosocial or physical stress. Therefore, any condition that affect body's immunity may also contribute towards falling prey for Covid-19 (Kalantar et.al. 2020). However, numerous studies have demonstrated that a balanced diet rich in immunity boosting foods may prevent symptoms of common cold. This may be applicable for the Covid-19 symptoms also. The immunity boosting foods include fresh vegetables and fruits. Vitamin C rich foods like lemons, lime, gooseberry, oranges, tangerine, grapefruit, kiwi, broccoli, tomato, cauliflower, kale, etc. may be helpful in improving immunity (Abbasi, 2019 and Chen, 2020).

## RESULTS AND DISCUSSIONS

It is a well-established fact that a malnourished person at any age and stage is more prone to any kind of infections and disease. Further, Imbalanced diets, meal patterns, faulty food choices and habits, poor sanitation not only affect the immunity adversely but also make a person susceptible to infections and other diseases. The long-term effects of Covid-19 may result in complex problems affecting all the age groups. The effects may not be limited to employment, economy, mindsets, decision making, purchasing power, decision making, globalization, urbanization, way of life but also on the nutrition status of all the age groups. The marginal and vulnerable groups may suffer from malnutrition due to inadequate food quantity and quality whereas other stratum may fall prey for the burden of over- nutrition with wrong food choices, availability and affordability. Addressing malnutrition is the prime aspect in order to keep the active population healthy and children growing. The short and long term impact of Covid-19 will

only exacerbate this situation of malnutrition. To maintain the graph of health and nutritional level during lockdown especially for the below poverty line population, the Cabinet Committee on Economic Affairs (CCEA), led by Prime Minister Narendra Modi, made another historic decision and initiated world's largest food security scheme by the expansion of India's Public Distribution System (PDS). This decision has ensured food security to nearly 80 Crore Indians (Chawla, 2020). Therefore, timely and appropriate decisions not only helped to flatten the curve of disease progression but also combat hunger.

Existing malnutrition decreased physical activity, poor diets, infectious diseases, poor sanitation combined with multiple effects of Covid-19 is taking India towards further lower levels of poverty, hunger, malnutrition, health, productivity and healthcare expenses. Malnutrition in any of its form may affect the immunity of a person making him prone to get affected. The underlying risk for the severity of the virus may tremendously increase in a malnourished person. The day to day dynamics are changed with worldwide lockdown strategy followed as preventive measures including social distancing have overshadowed our day-to-day dynamics. The unknown and uncertain effect and duration of Covid-19 is imposing forthcoming food and nutrition insecurity with reduced incomes, unemployment, poverty and hunger. These effects may alter our dietary patterns and food choices. This is quite evident from the purchase pattern of foods with the announcement of lockdown. People with purchasing power stored maximum amounts of processed and comfort foods which may worsen the situation of malnutrition further. Inadequate and imbalanced diets for longer duration may affect not only the vulnerable group's food intake adversely but also the food choices and intake of the affluent. To address the problem of hunger and malnutrition during lock down the Government of India has taken all the essential steps to address demand and supply chain and make perishable items like vegetables, fruits, milk, eggs, bread etc. accessible to one and all by keeping the

essential services open with all care and caution during the lockdown period. To make seasonal vegetables and fruits available and accessible and deal with the cost and inflation due to Covid-19, rates of fresh vegetables and fruits have been fixed on a day to day basis at local levels.

The approach to Covid-19 patient's treatment and prevention must include nutrition intervention as a main component. Majority of the malnourished people may be from the lower socio-economic groups and hence need more care and caution to fight against Covid-19. As the situation due to Covid-19 may last longer, nutritional care is important. All these tireless efforts made by the Government of India may double in its impact if people get aware about how to take best nutrition out of available food items and plan their daily food intake. The efforts to inculcate healthy diets and immunity boosting foods in daily diets are important. Addition of fresh vegetables, fruits and herbs to diet boost immunity. A balanced diet, with enough water intake, sleep and changes in lifestyle by addition of physical activity regularly in any form, avoiding stress, practicing hygiene and sanitation for self and surroundings, meditation, good and positive thinking, avoiding alcohol and smoking may garner entire India against vicious cycle of malnutrition just like Indians clapped together for our front liners and lit a candle to show unity.

## CONCLUSIONS

Strategies to fight global change, shooting situation of malnutrition due to increased poverty and hunger as a result of Covid-19 needs to be effective and long term. The Covid-19 has taught us that we need to build more rational food systems. Therefore, strategies may focus on: 1) Introduce a self-sustained model of essential nutrition garden in each house (terrace/pots/farm) for the availability and accessibility of all or any of the vegetables, fruits and herbs, 2) Publicizing, promoting and awakening people of all age groups to prefer India's nutritional and balanced meal made at

home (*Thali*: Pulse, vegetable, rice/chapati, curd/chach, salad, mint chutney, and pickle), 3) The processed foods must be made under suitable recommendations to retain maximum nutrition, 4) Using simple technologies like drying, fermenting, juicing, freezing, canning, preserving etc. may be taught to each one for maximum adaption to reduce the wastage of vegetable and horticultural crops, space taken for storage and transport cost, 5) Awareness and training from grass root level to entire population for retaining maximum nutrition from our food and immunity boosting foods their use and intake. (sprouts, steamed foods, fermented foods, common herbs etc.), 6) The ongoing schemes addressing the nutritional status of populations may have better outcomes by synergising and linking various schemes for a common goal but at different steps for combating malnutrition, 7) A holistic approach to address malnutrition with a careful planning by achieving nutritional goals through entrepreneurship development and women empowerment, and 8) Boost up economies by providing markets to small and marginalized.

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Regular articles are full-length original empirical investigations, consisting of introduction, materials and methods, results and discussion, conclusions. Original work must provide references and an explanation on research findings that contain new and significant findings.

Generally, these are expected to be between 6 and 12 journal pages (excluding the abstract, references, tables and/or figures), a maximum of 80 references, and an abstract of 100–200 words.

Articles must be in **English** and they must be competently written and argued in clear and concise grammatical English. Contributors are strongly advised to have the manuscript checked by a colleague with ample experience in writing English manuscripts or a competent English language editor.

Linguistically hopeless manuscripts will be rejected straightaway (e.g., when the language is so poor that one cannot be sure of what the authors really mean). This process, taken by authors before submission, will greatly facilitate reviewing, and thus publication if the content is acceptable.

**Empirical research** is based on observed and measured phenomena and derives knowledge from actual experience rather than from theory or belief.

Key characteristics to look for:

- **Specific research questions** to be answered.
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Description of the **process** used to study this population or phenomena, including selection criteria, controls, and testing instruments (such as surveys).

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#### ***Page 3: Abstract***

This page should begin with repeating the **full title** of your manuscript, followed by the **abstract and keywords**.

Abstract should contain the aim of the study, research methods (data collection procedure, data analysis procedure) and research findings/results. Abstract should NOT be more than 250 words. Use Times New Roman, 12pt. and 1.0 line spacing.

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**References**

**Supplementary Data** (if available)

**Introduction** should contain the background of study supported by citations taken from books, newspapers, journal articles, internet, etc. Introduction also explains the scope and objective of the study which are related to current knowledge and issues.

**Literature Review** consists of a summary of key sources, usually has an organizational pattern and combines both summary and synthesis with specific conceptual categories. A summary is a



recap of the important information of the source, but a synthesis is a re-organization, or a reshuffling, of that information in a way that informs how you are planning to investigate a research problem. The analytical features of a literature review might include to:

- Give a new interpretation of old material or combine new with old interpretations,
- Trace the intellectual progression of the field, including major debates,

Depending on the situation, evaluate the sources and advise the reader on the most pertinent or relevant research. Usually in the conclusion of a literature review, identify where gaps exist in how a problem has been researched to date. Use Times New Roman font type, 12pt in size and 1.5 line spacing.

**Materials and Methods** of the research should describe how the research is conducted by elaborating materials, participants, data collection procedure (e.g. sampling) and data analysis procedure.

**Results and Discussions.** Elaborate the research results/findings along with the discussions. This generally contains the analysis on the collected data. The analysis may also be supported by equations, formulae, tables, figures and photograph, as well as any related citations from books, journal articles, newspaper, internet, etc.

**Conclusions.** State your brief final conclusions drawn from the results and discussions.

**Acknowledgement.** Individuals and entities that have provided essential support such as research grants and fellowships and other sources of funding should be acknowledged. Contributions that do not involve researching (clerical assistance or personal acknowledgements) should **not** appear in acknowledgements.

List all **References** cited in your research. References should be in their own new page and be listed alphabetically based on first author's last name. Follow the **APA style referencing** (6<sup>th</sup> edition). Use Times New Roman font type, 12pt., and double (2.0) spacing. You may refer to the Publication Manual of the American Psychological Association for further details (<http://www.apastyle.org/>).

#### C. Equations and Formulae

These must be set up clearly and should be typed double spaced. Numbers identifying equations should be in square brackets and placed on the right margin of the text.

#### D. Tables

All tables should be prepared in a form consistent with recent issues of *Pertanika* and should be numbered consecutively with Roman numerals. Explanatory material should be given in the table legends and footnotes. Each table should be prepared on a new page, embedded in the manuscript.

*When a manuscript is submitted for publication, tables must also be submitted separately as data - .doc, .rtf, Excel or PowerPoint files- because tables submitted as image data cannot be edited for publication and are usually in low-resolution.*

#### E. Figures & Photographs

Submit an **original** figure or photograph. Line drawings must be clear, with high black and white contrast. Each figure or photograph should be prepared on a new page, embedded in the

manuscript for reviewing to keep the file of the manuscript under 5 MB. These should be numbered consecutively with Roman numerals.

Figures or photographs must also be submitted separately as TIFF, JPEG, or Excel files- because figures or photographs submitted in low-resolution embedded in the manuscript cannot be accepted for publication. For electronic figures, create your figures using applications that are capable of preparing high resolution TIFF files. In general, we require **300 dpi** or higher resolution for **coloured and half-tone artwork**, and **1200 dpi or higher** for **line drawings** are required.

Failure to comply with these specifications will require new figures and delay in publication.

#### **General rules on Figures and Tables**

- All Figures and Tables should be numbered sequentially (e.g. Table 1, Table 2 etc.) and cite each one in your writing as Table 1 or Figure 1.
- All tables should be referenced in the text of the paper and in the reference list. Each table should have an individual title. Each word in the title should be italicized and capitalized except with, of, in, and, etc.

CONTENTS

Foreword Bachtiar H. Simamora	i
Business Excellence Initiatives: A Study of Dubai Quality Award-Winning Organizations in UAE <i>Mehran Doulatbadi, Hajime Ushimaru and Azizah Yusof</i>	1
Analysis of the Production Process at PT TBA. Alam Sutera Using the Value Stream Mapping Method <i>Haryadi Sarjono, Stevin Dewa Yusuf and Gilang Ananta Ferrial</i>	9
The Factors Affecting Efficiency of Crude Palm Oil in Indonesia Palm Oil Industry <i>Yuli Eni, Christy Agustina, Metta Merlinna, Risya Bella, Roberto M. Arguelles and Sheryl Satorre-Estella</i>	17
The Menace of COVID-19: Survival Strategies for Small and Medium Scale Enterprises in Nigeria <i>Michael Okon Essien, Emmanuel Sunday Ukpog, Ime Robson Nseobot, Clement Efiog Okon, Ikoroha Innocent Simeon, Annetie Imo Effiong, Vinesh Dinnoo and Uduakabasi Ana Eyo</i>	25
COVID-19 – Affecting Malnutrition in India <i>Kanchan Sandhu</i>	35