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**THE EFFECTIVENESS
OF ISO 31000 IMPLEMENTATION IN MANUFACTURING INDUSTRIES
IN MELAKA**

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“I hereby declare that this project paper is result of my independent work except the summary and expert that have been acknowledgement”

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DEDICATION

I would like to dedicate the appreciation for my beloved families members, lectures and friends who have helped and support me to complete this research.

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Alhamdulillah, Thanks to Allah s.w.t, whom with His willing giving me an opportunity to complete this research paper entitled “The effectiveness of Implementation of ISO 3100 in manufacturing industries in Melaka” to fulfill my graduation requirement of Faculty of Technology Management and Technopreneurship (FPTT) and Universiti Teknikal Malaysia Melaka (UTeM). I would like to thank you to my parents, family, supervisors, classmates and fellow friends for helping me completing this research.

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**THE EFFECTIVENESS OF THE IMPLEMENTATION OF ISO 31000 IN
MANUFACTURING INDUSTRIES IN MELAKA**

ABSTRACT

For this research, it's a research about the effectiveness of the implementation of ISO 3100 in manufacturing industries. The research will be done on manufacturing company that allocated in Melaka. The ISO 31000 is still new international regulation as the ISO 31000 was officially published on 2009. The ISO 31000 is functionally will be the guide for the any industries to guide their company risk management framework that will helped them to reduce any accident or failure that will lead them to loss of profit and waste of money, time, energy and materials. The focus of the research is on manufacturing industries as the manufacturing industries was one of the high risk operation industries, therefore this industries is suitable with the objectives of the research. This research will discuss about the implementation of ISO 31000 and the effectiveness of implementation, either the implementation is followed all the principles of ISO 31000 or not. The appropriate questions will be asked and the data collected will be shown in this research. This research used methods like a survey, online interview and qualitative methods. The researcher objectives will be achieved and answering the research questions.

ABSTRAK

Untuk kajian ini, ia adalah satu kajian tentang keberkesanan pelaksanaan ISO 3100 dalam industri pembuatan. Kajian ini akan dilakukan ke atas syarikat pembuatan yang bertempat di Melaka. ISO 31000 merupakan peraturan antarabangsa yang baru kerana ia telah diterbitkan secara rasmi pada tahun 2009. Fungsi ISO 31000 adalah untuk menjadi panduan bagi mana-mana industri untuk membimbing rangka kerja pengurusan risiko syarikat mereka yang akan membantu mereka untuk mengurangkan apa-apa kemalangan atau kegagalan yang akan membawa mereka kepada kehilangan keuntungan dan pembaziran wang, masa, tenaga dan bahan mentah. Tumpuan kajian ini adalah pada industri pembuatan seperti industri pembuatan kerana ia adalah salah satu industri yang beroperasi dengan risiko yang tinggi, oleh itu industri ini adalah sesuai dengan objektif kajian. Kajian ini akan membincangkan mengenai pelaksanaan ISO 31000 dan keberkesanan pelaksanaan, sama ada pelaksanaan mengikuti semua prinsip-prinsip ISO 31000 atau tidak. Soalan-soalan yang sesuai akan ditanya dan data yang dikumpul akan ditunjukkan dalam kajian ini. Kajian ini menggunakan kaedah seperti kaji selidik, temu-bual secara atas talian dan menggunakan kaedah kualitatif. Objektif penyelidikan akan dapat dicapai dan akan menjawab semua persoalan kajian.

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LIST OF ABBREVIATION

ISO – The International Standardization for Organization

FMM – The Federation of Malaysia Manufacturers

SME – Small, Medium Enterprise

SIRIM – Scientific and Industrial Research Institute of Malaysia

GRA – Global Research Alliance

WAITRO – World Association of Industrial and Technological Organization

CTRM – Composite Technology Research Malaysia

R&D – Research and Development

R&T – Research and Technology

ERM – Enterprise Risk Management

ORM – Operation Risk Management and Compliance

RIC – Risk, Insurance and C

SO – Strategic Objectives

KPI – Key Performance Index

KRI – Key Risk Indicators

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CHAPTER 1

INTRODUCTION

1.1. Background of Study

Research on manufacturing company that has been applied the risk management in their organization. Every either small, medium or big company have their own risk and they will have their own risk management and based on (Lalonde & Boiral 2012), managing risk can be a huge challenge for organizations and they must face threats increasingly complex and diverse. Therefore, (Gjerdrum & Peter 2011) claims that ISO 31000 highlight a lot of attributes such as improving corporate governance, financial reporting and stake holders trust that will eventually make the risk management more effective. The ISO 31000 – Risk Management was published on eleventh month of 2009. (Dali & Lajtha 2012) found that the ISO 31000 have been made for four years and it was worked by 29 countries including United States and the ISO 31000 have been reviewed for three times and each times of review was comment by thousands of risk management professional and user all around the world. For every people that involved in risk management they seeking for solve any type of issues and risk that the results will turnover to their company performance, (Purdy 2010) points out that the purpose of ISO 31000 is to creating a standard of risk management that applicable to any form of risk that consist of 1) one vocabulary, 2) a set of performance criteria, 3) one common process to

identifying, analyzing, evaluating and treating risk and 4) guidance of how the process should be integrated into decision making process. ISO 31000 can help any size of organization to achieving their objectives, improve identification of opportunities and threats, allocate effectively and use resources for risk treatment because the ISO 31000 provides a set of principles, a framework and process for managing risk (Standard 2009).

1.1. Problem Statement

This research is conducted to find out the effectiveness of the implementation of ISO 31000 in manufacturing industries in Melaka. Risk management can be applied at any sector of industries and the focus of this research is focused on manufacturing company. (Pons 2010) investigated that due to the fluctuating patterns of global commerce manufacturing industries has particularly large risk than any other industries. (Amirmostofian et al. 2014) has stated that to improve economic, environmental and social performance and alleviate growing sustainability concern, the manufacturing industries has more potential to do so. According to (Meulbroek, 2002) (Fadun 2009), Risk management is an important tool for a firm to practice some forms of risk management either implicitly or explicitly in managing uncertainty associated with business. With the cost of raw materials that seems unstable because of the national currency not stable increase the risk of the manufacturing industries to produce their products. Besides that the risk management have already embedded into the ISO 9001 that have been used by many industries that including in covering the risk management section as well. (Amirmostofian et al. 2014) suggest that for effective implementation the integration of risk management into an organization's decision process is important. So, if the organization manages to integrate their risk management with decision process they will get an advantage and successful proving the effectiveness of risk

management implementation. (Purdy 2010) claims that the risk consider manage effectively and efficiently if the risk management meet up with all the principles of effective risk management in ISO 31000. (Gjerdum, 2015) also have state that the characteristic of effective implementation of ISO 3100 must follow the principles as the principles provide guidance on the rationale for managing risk. The problem is either the ISO 31000 really effectively helps the organization to overcome or minimize the risk that the comp any might facing in future. Thus this research is to investigate the effectiveness of the implementation of ISO 31000 in organization.

1.2. Research Questions

This research attempts to answer the following questions:

- 1.2.1.** Why ISO 31000 is important in manufacturing industries?
- 1.2.2.** Which principles of ISO 31000 is the most effective in help the organization managing their risk management?
- 1.2.3.** How the principles of ISO 31000 drive the risk management in achieving organization objectives?

1.3. Research Objectives

The research objectives for this research are:

- 1.3.1.** To identify the importance of ISO 31000 in manufacturing industries.
- 1.3.2.** To determine the most effective principles of ISO 31000 in organization.
- 1.3.3.** To determine on how the principles of ISO 31000 drive the organization risk management to achieve their objectives.

1.4. Scope and Limitation of Study

The scope of this study to investigate the effectiveness of the implementation of ISO 31000 in manufacturing industries in Melaka. Thus the respondent for the research is manufacturing company that has applied the risk management in their organizations.

There are limitations for this research and there limitations of this research are the research area was limit in manufacturing company that was based in Melaka only.

1.5. Significant of Research

The importance of this research is to show the benefits and advantages a company can receive when an organization applied the ISO31000 in organization. Other than that is to give awareness to others company about the importance of risk management in organization.

1.6. Summary

This chapter was mention about the foundation for this research. It has outlined the background of the study, problem statement, research questions, research objectives, scope and limitation of study and significant of research. Based on this outlined, the researcher proceeds to the next chapter which is chapter two and will discussed about the literature review.

CHAPTER 2

LITERITURE REVIEW

2.1. Introduction

This chapter will discuss about the definition of risk, type of risk, ISO31000:2009, definition of manufacturing, risk in manufacturing industries, risk management principles, risk management framework, risk management process that will a guide to answering the research questions. Furthermore, the theoretical framework is developed as a guide to conduct this research was shown in section 2.8.

2.2. Definition of Risk

Risk usually contains two keys which are uncertainty and outcomes and in common usage people will associate risk with negatives outcome more than positive but normally both are present (Putnam, 1999). (Alfi, 2011) (Rosa, 2003) defines risk as “when something of human value (including humans themselves) is at a situation or event at stake and where the outcome is uncertain”. Risk can occur at any time, any places and at any situation and it

occur from internal or external factor and the outcomes can be in positive or negative results. The ISO Guide 73 define risk as “the effect of uncertainty on objectives” and it also the effect may be in positive, negative or deviation from expected situation and it is usually described by an event, a change in circumstances or consequences (Airmic, Alarm, & Irm, 2010). (Gjerdum 2015) also define risk as the effect of uncertainty on objectives. According to (Australian Government, 2009) definition of risk is “the effect of uncertainty on objectives” was change from “the chance of something happening that will have an impact on objectives”. Therefore, common elements of risk are concepts of chance, uncertainty, probability, consequence, likelihood, and impact on outcomes or objectives (Robertson, 2013).

2.3. Types Of Risk

(White & Hanselka 2000) found that the types of risk are Climatic risk which is come from nature, for example like rainfall, drought and severe winter. Other than that, Biological risk also has been state like livestock disease, predation, and grasshopper infestation. Financial risk also was mention and financial risk was associated with every management in organization for example like rising interest rate, rising production cost, falling cattle prices and falling land values. The other risk is Political risk where the environment needs to be safe and healthy and the landowners need to responsible towards their own land. Other than that,(Adams 2007) claims that risk was perceived from three condition which are directly perceived risk that much on operational risk and managed by using judgment which is a combination of instinct, intuition and experience. Risk perceived through science and this risk is quantified risk assessment where the data are collect from accident statistics, the traffic modeler and the cost-benefit analyst. Last one is virtual risk where if science cannot settle an argument, people will feel free to argue from their pre-established

convictions, beliefs, prejudices, superstitions. (Embrechts et al. 2009) list out the type of risk are credit risk where credit risk is the risk of default or change in the credit quality of issuers of securities to whom a company has an exposure. Market risk is where the value of investment decreasing as it moves in market risk factors. Operational risk is the failure of internal processes, people and system or external issues that lead to losses. Insurance risk is life insurance contract that typically characterized by long-term financial promises and guarantees towards policyholders. Aggregation of risk is the economic models are based on tacit assumption where the risk can be diversified via aggregation.

2.4. ISO 31000:2009 Risk Management

Risk Management is the integration of set principles, process, activities, role and responsibilities, and infrastructures change into a system and the function is to control the action of organization in light of the risk it faces (Putnam 1999). Other than that, (Gjerdum 2015) defines risk management as activities that have coordination to direct and control an organization with regard to risk. Risk management plays an important role in business success as they outlined that managing the threats and opportunities to our businesses within acceptable risk tolerances. ISO stand for International Organization for Standardization is the largest developer of voluntary International Standards and it was join by the independent and non-governmental membership organization that were made up of 162 member countries who are the bodies of the national standards all around the world with a Central Secretariat that is based in Geneva, Switzerland (Standard 2009). (Leitch 2010) points out that ISO 31000 was established in November 2009 and outlined that this is the first ISO that has claimed to be a standard for managing risk everywhere. The function of ISO guidelines are for wide area of risk management practitioners, novice or experience and for those who are responsible in managing risk that are

interested in benchmarking their risk management organization and practices against a recognized international references (Dali & Lajtha 2012). ISO 31000 outlined a series of principles and process which connect to an overall framework for risk management (Robertson 2013). The principles, framework and process for risk management must be aligned and connect together to make it achieve the objective of organization effectively. Thus, for effective implementation the integration of risk management into an organization's decision process is important (Amirmostofian et al. 2014).

2.5. Manufacturing

Manufacturing is a process of changing materials to a product through specific processes. (Ivana Morton Holmes 2014) point out that manufacturing is a value added process of raw materials and turning them into a product. Manufacturing process plays important roles to produce a product. The most equipment exist is for discrete manufacturing process and there are many types of discrete manufacturing process involved. (Raouf et al. 2011), list out that there are three types of manufacturing which are discrete manufacturing, continuous manufacturing and flexible manufacturing. The most equipment exist is for discrete manufacturing process and there are many types of discrete manufacturing process involved. They also list out the 11 types of discrete manufacturing process are metal forming processes, bulk deformation processes, sheet metal forming processes, metal removal processes, metal joining processes, processing of polymers and reinforced plastics, thermal treatment of materials, surface treatment of materials, fabrication of micro-mechanical and microelectronic devices, nonconventional processes and processing of metal powders, ceramics, glasses, composites and super conductors. There are four basic approaches available for manufacturing which are flow line, job shop, cellular system, and project shop.

2.6. Risk in Manufacturing Industries

Manufacturing industries is complex industries that have many level of business and therefore they have most probability to facing a negative risk as their business process is complicated and connect with many suppliers and probably have linked with a company that based from others countries. Due to the fluctuating patterns of global commerce manufacturing industries has particularly large risk than any others industries (Pons 2010). Addition from (Ennouri W. 2013) in several years the industries have reported with many violent incidents, health crises and natural disasters and it give a huge impact on economic activity. (Islam & Tedford 2012) investigated that the manufacturing industries most likely to focus heavily on advanced management and production activities to increase organizational flexibility, enhance quality of product and increase innovative capability in the last two decades and they put less focus on the management of risk even though they incorporate project management techniques within its operation but risk management still remain unimportant to them. If the effort to focus on managing risk is remain anomaly they will not sufficiently to be ready to prevent any accidents. Thus the manufacturing industries must have an excellent risk management and by using the ISO 31000 they can improve their risk management to reduce any incident that probably occur in any of their business level while it also helps them to achieve the organization objectives.