

SAFETY KEY PERFORMANCE INDICATORS FOR SMES

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To my beloved father and mother
for their endless supports and encouragements

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ABSTRACT

Today competitive market requires safer workplace and satisfied employees who highly improve quality and quantity of production. This may not possible without Occupational Safety and Health (OSH) programs that are utilized to handle hazardous circumstances. Trade-off between amount of incidents and related prevention costs seems to be more concerned while highly affects company profit. This study aims to determine safety key performance indicators which affect costing of occupational safety and health (OSH) in Small and Medium Enterprises (SMEs). Since recent 20 years, OSH has been used in many researches, but few studies have been done regarding SMEs. A literature survey was conducted to find the most critical key performance indicators. Key performance indicators were then evaluated using a questionnaire distributed among 30 SMEs located in Johor Bahru, Malaysia. A costing model, including wage of the safety staff as fixed cost and 17 variable costs is defined regarding to the indicators. As a result, suggested model clarified that training, ergonomic and technological indicators were the most effective factors.

ABSTRAK

Persaingan dalam pasaran yang begitu kompetitif mutakhir ini mendorong kepada keperluan tempat kerja yang lebih selamat dan kondusif untuk kemudahan para pekerja yang secara langsung menyumbang kepada peningkatan kualiti dan kuantiti pengeluaran. Kemudahan ini tidak mungkin dapat dicapai tanpa mengambil kira akta Keselamatan dan Kesihatan Tempat Kerja (Occupational Safety and Health) yang menerapkan pengendalian bahaya pada saat kritikal. Keseimbangan antara jumlah insiden dan kos pencegahan memerlukan penekanan yang khusus lebih lagi apabila ia mempengaruhi nilai capaian keuntungan syarikat. Kajian ini menumpukan kepada indeks petunjuk prestasi dimana memberi kesan terhadap Keselamatan dan Kesihatan Pekerja (OSH) untuk Syarikat Kecil dan Sederhana (IKS). Semenjak 20 tahun kebelakangan ini, OSH telah menjadi amalan lazim untuk kebanyakan penyelidik; namun hanya sebilangan kecil kajian dilakukan terhadap Syarikat Kecil dan Sederhana (IKS). Sebuah kajian selidik maklumat telah dijalankan untuk mengenal pasti petunjuk prestasi yang paling kritikal dalam membentuk kajian ini. Indeks petunjuk prestasi dicapai melalui edaran soal selidik kepada 30 buah Syarikat Kecil dan sederhana di sekitar Johor Bahru, Malaysia. Satu model telah ditakrifkan sebagai faktor, yang turut merangkumi nilai upah sebagai kos tetap untuk pekerja keselamatan dan juga 17 jenis kos-kos lain yang berkaitan dengan faktor tersebut. Hasilnya, model yang dicadangkan menjelaskan bahawa latihan dan ergonomik dan petunjuk teknologi merupakan faktor-faktor yang berkesan.

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CHAPTER 1

INTRODUCTION

1.1 Overview

Work place accidents or illnesses are undeniable causes of loss in quality which mostly it's not easy to use compensation and rehabilitation programs to eliminate waste in asset. Prevention tactics concerning reduction in severity and frequency of such potential incidents may minimize the financial cost and extends sustainability of human resources as a result.

Here in, Occupational safety and health (OSH), as essential long term programs to the social protection of workers, benefit employees and society by preventing work accidents and occupational illnesses. A simple definition of explanation of OSH in respect of a "place of work" is the "state of being safe" or "the absence of factors that could lead to accidents, injuries or interruptions to work" (Alwi, 2011).

The International Labour Organization (ILO) appraises more than two million casualty per year occur due to occupational accidents or illnesses. Some believe that around 337,000,000 occupational accidents and 160 million occupational diseases happening each year. They deduce almost 1,950,000 deadly work-related illnesses happen per year (Niu, 2010).

The most important questions for companies which establish OSH programs are how beneficial is occupational safety and health? And financially whether

workplace prevention strategy is beneficial at a microeconomic level or not? So, the economic benefits of prevention measures are analyzed and the distinction among different types of prevention measures including: direct; indirect; short-term; and long-term have been made.

These reasons motivate every researcher to find a more economic way to establish OSH programs. This study is based on a costing model to decrease; but, in spite of investing money in these types of researches, there are some trade-offs to care about which, investigating cost-effective analyze of such model will save many lives.

In recent years too many studies carried out by different researchers all around the world to prepare a safer work place by decreasing the cost of establishing such programs. In Malaysia also some studies managed to control accident losses due to work places. Some studies investigated necessity of OSH programs and some tried to decrease additional costs.

This study is carried out to establish costing model of OSH where the importance of this study is about human lives. Costs of doing or consequences of leaving this issue both affect society. Therefore, need to more knowledge in this area seems undeniable. In regards to the gap result of insufficient studies in this area in Malaysia, especially in SMEs, investigating costing in OSH in Malaysia sounds significant for us.

1.2 Background to the problem

1.2.1 Human loses

It is undeniable fact that high level of injury and disease continuously happening in the workplaces. Tragedy of human loses affects family, friends and workmates. Community that values individuals also regrets by the cost for a worker life, especially when prevention could be taken. As an ethic duty of each

organization taking care of workers comes first. As mentioned above, uncovering this issue will affect society's sense of humanity.

Some effects of unsafe working place on people are:

- (i) Disease, injury and death
- (ii) Suffering or pain
- (iii) Lifestyle altered
- (iv) Psychological effects
- (v) Absenteeism

1.2.2 Human force as an asset

Another problem of unsafe working place is costs related to training new worker, lack of experts, and so on strongly affects Company's productivity. Skilled workers are parts of company's capital. Each company pays money and time to teach worker how to deal with their job. Loosing these workers as a valuable asset will damage company's economy seriously. Some phenomenon effecting by unsafe working environment are:

- (i) Absenteeism
- (ii) Reduced or poor productivity
- (iii) Poor corporate image
- (iv) Low workplace morale

1.2.3 Quality costs

More incidents will cause more quality deviation. Worker effect quality of part as the person who operates machine or carry out the job. Changing operator continuously will cause different dimensions, different specifications and so on;

which, resulted from to their different level of skills, training and knowledge. It is proved that high diversity in production means low quality, and low quality causes more cost on company and community.

- (i) Financial problems
- (ii) Reduced or poor productivity

1.2.4 Company size

Some stock holders (managers or owners) think that because of the small size of their company there is no need to establish an OSH preventing program. Actually some researches shown smaller companies had somewhat higher accident costs comparing to the large enterprises. This wrong believes will damage company by choosing inadequate strategies. This believes will cause wrong decision and more incidents or occupational illness; following by higher costs on community. Eakin, 1992; Hasle and Limborg, 2006, discussed limited resources of company is the main reason of manager's minor focus on OSH (Hasle, Bager, & Granerud, 2010).

Unlike mentioned believe of such stockholders, Stevens,1999; Walters, 2001; Fabiano et al., 2004; Sorensen et al., 2007 believed small enterprises have a more hazardous work environment (Hasle et al., 2010).

1.2.5 Ineffective safety management

SMEs need more attention to choose or train a more adequate manager; some studies illustrate untrained manager or supervisor caused many problems in OSH area. These circumstances hurt both sides; workers due loss of income, medical costs and pains and suffering during rehabilitation, and company due to production losses, equipment costs and complains. On the other hand trained workers familiar with OSH principals will decrease accidents happened. So, lack of training of workers,

supervisors and managers is another critical issue in OSH area which may not be forgotten. Uncovering this training will increase cost concerning to occupational safety area.

1.2.6 Reputation

Another problem concerning to unsafe working situation are complains and loosing reputation of the company. Unsafe circumstances with and uncovering standards in work place will cause incidents or occupational illnesses. Besides loosing human lives and skilled asset of company, compensation of complained will destroy the company' reputation.

- (i) High compensation costs
- (ii) Community costs.

1.3 Problem statement

The number of small enterprises has increased greatly over the last decade and small and medium size enterprises (SMEs) which have 50 employees or less conformed huge portion of all firms in all sectors. Studies related to OSH in SMES are a totally new field developing fast, Hsiao-Yu Yang, 2013 says. (Yang, 2013)

Owners and workers have to obey same OSH lows and regulation; while some doubt SMES don't report injuries clearly. On the other hand these companies may face fewer accidents concerning their less occupation rate which causes ignorance of the casualties (Champoux & Brun, 2003).

While, the proposed models based on big companies is not adequate for small enterprises; actually, the analyzing their scattering geographically or other aspects

such as their youth nature may be useful to define regarded devices to ensure safe work place (Harms-Ringdahl, Jansson, & Malmén, 2000).

Some unclear issues in past researches are studied here. Lack of studies to declare costing in safety, especially in SMEs, might be the most important purpose of this paper. Such constraints may prevent using this outcome to other cases. On the other hand, most owner/managers believe that adapt OSH obligations or even investigating it, is unnecessary costly thing which is not important in SMEs.

Finally, through existing lack of information and related researches it is challenging to find and review key indicators of OSH costing model.

1.4 Scope

The study will include costing in OSH and the key indicators, and moreover how effective they are. It is focused on defining adequate costing model; While, this study does not cover any other SMEs that do not place in Malaysia.

1.5 Objectives

1. To determine the performance indicators for costing in OSH
2. To establish the ranking of key performance indicators for costing in OSH
3. To develop key performance indicators and a model for costing in OSH

1.6 Significance of study

Costing in OSH and economic approach to safety issues is not concerned in much works; particularly in SMEs. Such lack of research motivates us to focus on

SMEs; through the critical role of those enterprises in the Malaysian economy. Generally, some benefits of using OSH are consisting of:

- (i) Improved productivity
- (ii) Reduced absenteeism
- (iii) Reduced claiming for life insurance
- (iv) Economically profit resulted by program.

Economically approach to performing OSH in SMEs motivates these enterprises to utilize safety programs; more research in this field then is suggested as a result.

Concerning lack of information in this area and reasons mentioned for importance of performing OSH in SMEs this study investigates costing of OSH in SMEs.

1.7 Organizations of thesis

Chapter 1 introduces costing in OSH. Then it summarize of background of problems denoted. Some explanations including organizing the thesis are also proposed.

Second chapter then characterize the Literature review of costing in OSH. The indicators of such costing model are explained. After measuring key factors, some logics for choosing these indicators in this paper are proposed.

Chapter 3 defines existed models and investigates the outline of a model which seems more appropriate. This supports the costing model in detail.

Chapter 4 explains the offered costing model. An illustration of key performance indicators also is given.

Examining the existed literature of costing model and Key performance indicators are also presented in chapter 5.

1.8 Conclusion

Occupational accidents or illness cause huge costs on each community in different ways. Human losses, capital costs, quality costs, complains and loss of reputation resulted by wrong believes, untrained staff and supervisors and lack of information are most critical problem in occupational safety area.

This chapter has presented the justification to accomplish costing in OSH and lack of information about costing in occupational safety area and other side problems, especially in SMEs in Malaysia. Next chapter studied the literature of the area under investigation.

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