

2. Turnitin BENEFIT OF

by Muhamad Istan

Submission date: 02-Aug-2022 09:28PM (UTC+0700)

Submission ID: 1878099043

File name: MU8F3A_1.PDF (856.44K)

Word count: 7406

Character count: 43608

BENEFIT OF BENCHMARKING METHODS IN SEVERAL INDUSTRIES: A SYSTEMATIC LITERATURE REVIEW

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ABSTRACT

The aim of this paper is to determine the benefits of benchmarking methods in the industry, the benefits of implementing benchmarking to customer satisfaction, increased productivity, quality improvement, continuous improvement, market performance, environmental awareness and industry competitiveness. The method used in this research is literature review, data collection and originating information from reputable international journals on benchmarking in the industry, there are 42 of international journals articles collected and as a source of data analysis review. The data in this paper is secondary data sources referred to several articles from reputable international journals. The results of the literature review are found that benchmarking in industrial companies provides benefits that are increased customer satisfaction, increased productivity, increased quality, the implementation of continuous improvement, increased market performance, increased environmental awareness and increased industrial competitiveness. This research can be used as a new reference for researchers to conduct further research and provide the benefit of adding literacy to other researchers who will examine the topic of benchmarking in the industry.

Keywords: Benchmarking, Manufacturing Industries, Schematic Literature Review

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INTRODUCTION

According to Davies (1999) at present the journey of all aspects of the company both profit oriented and social oriented faces many challenges from the environment. Changes occur so quickly and sometimes unpredictably. These changes include in the fields of economy, technology, market and competition. This change requires companies to change all the habits that have been done so far to face a high level of competition and to achieve the desired goals. For this reason, a new approach is needed in evaluating employee performance, known as Performance Management. While the kinds of benchmarking itself are as follows, Internal benchmarking, by comparing the operations of a section with other internal parts in an organization. Competitive marking is to hold comparisons with various competitors. Functional benchmarking is by comparing the functions or processes of companies in various industries; and Generic benchmarking is with fundamental business processes that tend to be the same in every industry.

Benchmarking types themselves are as follows: a. Internal benchmarking, by comparing the operations of a section with other internal parts in an organization. b. Competitive benchmarking is by comparing with various competitors c. Functional benchmarking is by comparing the functions or processes of companies in various industries; and D. Generic benchmarking is with fundamental business processes that tend to be the same in every industry. According to Dewitt (1996) To conduct benchmarking, it can be done in four ways as follows: 1. In-house research, conducting an assessment of information within the company itself as well as information available in the public 2. Third-Party Research, financing benchmarking activities to be carried out by surveyor companies 3. Direct Exchange, direct exchange of information can be done through

questionnaires, telephone surveys, etc. 4. Direct visits make visits to benchmarking partner locations (this method is considered the most effective).

According to Chen (2002) the benchmarking strategy in improving company / organization performance is carried out comprehensively through: 1) adjusting the vision, mission, and objectives, 2) analyzing the strategic environment, 3) determining the benchmarking topic, 4) determining the superior company for benchmarking objectives, and 5) forming a benchmarking team. The implementation of benchmarking studies the destination company uses interview / discussion, observation, and documentation methods to collect data. The data from the benchmarking study is then adapted and selected by considering several factors, including; culture, human resource capacity and budgeting by adhering to the principle of keeping the old things that are good and taking new things that are better. In practice it is certainly not easy especially in obtaining company data that is being targeted for comparison. Paul further elaborates on the five levels of benchmarking: Strategic benchmarking, measuring and comparing key aspects related to fulfilling the desires or expectations of consumers and / or customers. In this context what must be achieved is how companies conduct their operations to enhance competitive advantage that is focused on consumers or customers. One tool commonly used is the fish-bone diagram. According to Danieks (1996) benchmark control in improving company / organization performance is done through intense communication between leaders, subordinates, and all company stakeholders can make the application of strategies more effective, being able to detect as early as possible the various obstacles faced by subordinates. Openness and flexibility of a leader is also a very important principle as an effort to lead the attention of the needs of his subordinates. So that

through an intense, open, and flexible form of leader control, there is a mutually beneficial relationship between leaders and subordinates. (Andersen, 1996) Benchmarking Strategies as an Element of Planning Planning is an effort to take into account future uncertainties and make preparations that will lead the organization towards that time, especially through setting achievable goals that will bridge the present and future. The process of consideration in planning illustrates how Benchmarking strategies match the preparation of a strategic plan. two fundamental questions will emerge that must be answered by companies in implementing benchmarking. The question is: what the company should make the benchmark of the benchmarking process, who should the company use as a benchmark for comparison, and how to carry out the benchmarking process. (Tatterson, 1996). According to Wheelen and Hunger (2010) increasing competition has an impact on companies. The impact can be seen from the number of companies that make benchmarks with other companies in order to achieve success. With benchmarking, companies can improve their performance. Benchmarking itself can be done in all fields in the company. Companies can get benchmarks by comparing with companies that are better than the best or companies can compare with the existing industry average. The benchmarking strategy can be done if it is known what will be measured or compared and what will be used as a benchmark. Both of these questions can be answered by carrying out the ten stages of benchmarking, namely Identifying and recording the processes, practices, or services that will be benchmarked, making a list of potential companies that will be benchmarked, collecting and storing data of companies that will be benchmarked, analyzing company data will find out the distance between company practices and best practices by other companies in the industrial environment in which the company is engaged, to keep abreast of its competitors, communicate results and apply to be accepted in the corporate environment, set goals to be achieved (Goals), make an implementation plan for each objective, Implement and monitor the results of the implementation of the strategy, start the process back step by step. (Lau, 2002). Company performance can be defined as the level of achievement of other results, performance is the level of achievement of company goals (Rue & Byars, 2007). To have a competitive advantage and achieve good company performance, Benchmarking is needed. Tatterson (1996) argues that by using benchmarking companies can compare competitive advantages between companies, and the results of this comparison can be used as a basis for creating competitive advantage of the company itself. In addition, benchmarking is a technique or tool to improve company performance so that the company has superior performance (Booth, 1995). Benchmarking is also useful to improve company performance so that company performance can be achieved (Venetucci, 1992). A measure of Competitive Advantage Wheelwright (1984) emphasizes that cost, quality, dependability and speed of delivery are priority competitiveness for manufacturing. Some other literature literature also mentioned indicators to measure competitive advantage, such as; Tracey, M. and Chong Leng Tan (2001) use price, quality, delivery, and flexibility indicators. Li, Ragu-Nathan, and Rao (2006) use indicators of competitive pricing, premium pricing, value to customer quality, dependable delivery, and product innovation. The purpose of this study is to determine the benefits of benchmarking methods in the industry, the benefits of implementing benchmarking to customer satisfaction, increased productivity, quality improvement, continuous

improvement, market performance, environmental awareness and industry competitiveness.

Method

The method used in this literature review is literature review, data collection, and information derived from leading international journal articles about comparative studies in industry, as many as 42 journal articles were collected and as a source of data analysis studies. The data used in this paper is secondary data that is obtained not from the direct observation. However, the data was obtained from the results of research conducted by previous researchers on the topic of benchmarking in various industries. The secondary data sources referred to are articles from leading international journals. Systematic literature is a method of reviewing literature that identifies, evaluates, and interprets all findings on previous research topics, to answer predetermined research questions (Kitchenham & Charters, 2007). Literature Review helps us in compiling a framework that is in accordance with the theories, findings, and results of previous research in solving the problem formulation in the research that we make. The literature review method compares various journal articles to analyze their similarities and contradictions to obtain recommendations for further research. The first step is to search for and collect articles on benchmarking from various international journals and get 90 articles, then from 90 articles are sorted so that 42 journals are eligible to be reviewed and then review 42 articles in depth, analyze and display a recap of the analysis data then do gap analysis and present data and make conclusions and recommend suggestions.

The framework of this study is illustrated in fig.1 as below.

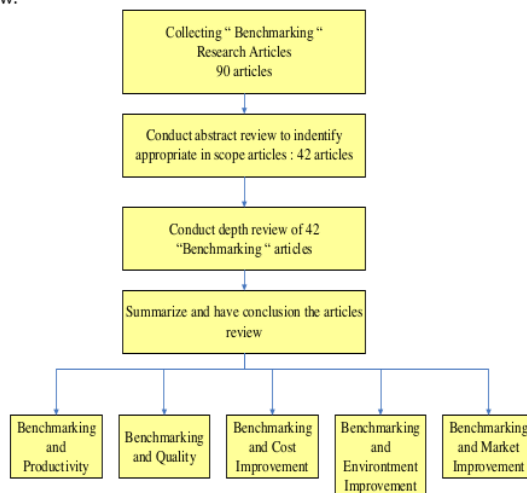


Figure 1. Research Framework

Result and Discussion

In this section, showing the existing literature of implementation Benchmarking in various industry. The following table is a list of articles from reputable international journals with benchmarking themes to be reviewed, There are 32 benchmarking articles will be reviewed. Based on the results of a review of 42 journal articles look for similarities (compare), look for inequality (contrast), give a view (criticize), compare (synthesize), summarize all of articles the results and discussion are as follows:

Table 1. List of Reviewed Benchmarking Articles

No	Paper Identity	Research object	Result
1	Mohamed, S. (1996)	Construction Industries	The results of this study are that there are several benefits of benchmarking, namely increasing productivity, increasing quality, increasing safety, reducing costs and environmental awareness, speeding up delivery time.
2	Zairi, M. (1994)	Automotive	The results of this study are benchmarking is a strategic tool to improve quality, increase safety, reduce costs and environmental awareness, speed up delivery time.
3	Gable et al. (1993)	Automotive	The results of this research are increasing product sales. reduce costs and environmental awareness, speed up delivery time.
4	Vermeulen, W. (2003	Financial Sector	The results of this study are that there are several benefits of benchmarking, namely improving company performance, environmental care, speeding up delivery time.
5	Massheder, K. and Finch, E. (1998)	Facilities Management	The results of this study are some of the benefits of benchmarking, namely increasing productivity, winning business competition
6	Hinton et al. (2000)	Private Sector	The results of this study are that there are several benefits of benchmarking, namely increasing productivity, increasing quality, increasing safety, reducing costs and environmental awareness, speeding up delivery time.
7	Books et al (2003)	Electronics	The results of this study are that there are several benefits of benchmarking, namely environmental awareness and work comfort.
8	Southard et al. (2007	Chemical	The results of this study are that there are several benefits of benchmarking, namely increasing productivity, increasing quality, increasing safety, reducing costs and environmental awareness, speeding up delivery time.
9	Shen et al (2000)	Chemical	The results of this study are that there are several benefits of benchmarking, namely customer satisfaction, increasing safety, reducing costs and environmental awareness, speeding up delivery time.
10	Pilcher, T. (1999)	European Industry	The results of this study are that there are several benefits of benchmarking, namely increasing competitiveness, increasing safety, reducing costs and environmental awareness, speeding up delivery time.
11	Andersen et al. (1999	Brities Metal Companies	The results of this study are that there are several benefits of benchmarking, namely cost improvement, environmental care, speeding up delivery time.
12	Ribeiro, L.M.M. and Sarsfield Cabral, J.A. (2006)	Metal Casting	The results of this study are that there are several benefits of benchmarking, namely increasing competitiveness, improving quality, improving safety.
13	Marwa et al. (2008)	Expedition	The results of this study are that there are several benefits of benchmarking, namely increasing productivity, increasing sales and outcomes
14	Razmi et al. (2000)	Oil and Gas	The results of this study are that there are several benefits of benchmarking, namely improving financial performance
15	Whymark, J. (1998)	Financial Service	The results of this study are that there are several benefits of benchmarking, namely increasing productivity, increasing quality,

			increasing safety, reducing costs and environmental awareness, speeding up delivery time.
16	Voss et al (1997)	Europe Manufacturing	The results of this study are that there are several benefits of benchmarking, namely increasing productivity, reducing costs and environmental awareness, speeding up delivery time.
17	Smith, I. (2006)	Human Resource	The results of this study are that there are several benefits of benchmarking, namely increasing productivity, increasing quality, increasing safety, reducing costs
18	Hewitt et al. (1996)	Electronics	The results of this study are that there are several benefits of benchmarking, namely increasing productivity, improving quality, increasing safety, reducing costs and environmental awareness, speeding up time
19	Current et al (2003)	Food	The results of this study are that there are several benefits of benchmarking, namely environmental awareness, speeding up delivery time.
20	Stoy, C. (2007)	Office Building	The results of this study are that there are several benefits of benchmarking, namely increasing productivity, increasing quality, increasing safety, reducing costs and environmental awareness, speeding up delivery time.
21	Behara et al. (1997)	Service Industry	The results of this study are that there are several benefits of benchmarking, which are reducing costs and environmental awareness, speeding up delivery time.
22	Chen, H. (2002)	Airport	The results of this study are that there are several benefits of benchmarking, namely improving operational performance, increasing safety, reducing costs and environmental awareness, speeding up delivery time.
23	Wauters, B. (2005)	Facilities Management	The results of this study are that there are several benefits of benchmarking, namely increasing productivity, improving quality, increasing safety, reducing operational costs
24	Mahesh et al. (2004)		The results of this study are that there are several benefits of benchmarking to improve safety, reduce costs and environmental awareness, speed up delivery time.
5	Sánchez et al. (2003)	Supply Chain	The results of this study are that there are several benefits of benchmarking, namely environmental awareness, speeding up delivery time.
26	McNamee et al (1999)	Small Firm	The results of this study are that there are several benefits of benchmarking, namely increasing productivity, increasing quality, increasing safety, reducing costs and environmental awareness, speeding up delivery time.
27	Freytag et al (2001)	Small Firm	The results of this study are that there are several benefits of benchmarking, namely increasing employee satisfaction, improving quality, increasing safety, reducing costs and environmental awareness, speeding up delivery time
28	Price, C.P. (2005)	Laboatories Medicine	The results of this study are that there are several benefits of benchmarking, namely improving quality, increasing safety, reducing costs and environmental awareness
29	Kannan, V. (2010)	Indian Shipper	The results of this study are that there are several benefits of benchmarking, namely

			increasing productivity, increasing quality, increasing safety, reducing costs and environmental awareness, speeding up delivery time.
30	Fernandez et al. (2001)	Food	The results of this study are that there are several benefits of benchmarking, namely improving business performance and sales performance
31	Parker, N. (1998)	Service	The results of this study are that there are several benefits of benchmarking, namely increasing productivity, increasing quality, increasing safety, reducing costs and environmental awareness, speeding up delivery time.
32	Wettstein et al (2016)	Marketing	The results of this study are that there are several benefits of benchmarking, namely improving operational performance
33	Anderson et al (2007)	Uk Industries	The results of this study are that there are several benefits of benchmarking, namely cost improvement, environmental care, speeding up delivery time.
34	Hosseinpour et al (2015)	Construction	The results of this study are that there are several benefits of benchmarking, namely increasing competitiveness, improving quality, improving safety.
35	Hwang et al (2013)	Contractor	The results of this study are that there are several benefits of benchmarking, namely increasing productivity, increasing sales and outcomes
36	Vagnoni et al(2008)	Health	The results of this study are that there are several benefits of benchmarking, namely improving financial performance
37	Manzini et al (2006)	Universities	The results of this study are that there are several benefits of benchmarking, namely increasing productivity, increasing quality, increasing safety, reducing costs and environmental awareness, speeding up delivery time.
38	Matthews, D.H. (2003)	Environment	The results of this study are benchmarking is a strategic tool to improve quality, increase safety, reduce costs and environmental awareness, speed up delivery time.
39	Guimaraes et al (1994)	Industry	The results of this research are increasing product sales. reduce costs and environmental awareness, speed up delivery time.
40	Nassar, M. (2012)	Hotel	The results of this study are that there are several benefits of benchmarking, namely improving company performance, environmental care, speeding up delivery time.
41	Conley Tyler, M. (2005)	Non Profit Sector	The results of this study are some of the benefits of benchmarking, namely increasing productivity, winning business competition
42	Carpinetti et al (2008)	SMEs	The results of this research are increasing product sales. reduce costs and environmental awareness, speed up delivery time.

Types of benchmarking the known types of Benchmarks are Internal Benchmarking This approach is carried out by comparing the operation of a section with other internal parts in an organization, such as the performance of each department, division, and branch. Competitive marking Competitive benchmarking is done by making comparisons with various competitor. Compare factors can be in the form of product characteristics, performance, and functions of the same product produced by competitors in the same market. Functional marking This approach is carried out by making comparisons of functions or processes of companies in

various industries. Generic benchmarking Generic allegations is a comparison of fundamental business processes that tend to be the same in every industry or company, such as receiving orders, and developing strategies. In these cases, a guess can be held even though the company is in a different industry field.

Based on the Figure 2 , the sector distribution of 42 articles reviewed is Airport is 2.38%, Automotive is 4.76%, Chemical is 9.52%, Construction is 7.14%, Electronics is 4.76%, Environment is 2.38%, Expedition is 2.38%, Facilities

Management is 4.76%, Financial Sector is 4.76%, Food is 4.76%, Food is 2.38%, Hotels are 4.76%, Human Resource is 2.38%, Shipper is 2.38%, Mining is 2.38%, Profitatories are 2.38%, Marketing is 2.38%, Metal is 7.14%, Non Profit Sector is 4.76%, Office Building is 12.38%, Oil and Gas is 4.76%, Private Sector is 2.38%, Service is 2.38%, Service Industry is 2.38%, Supply Chain is 2.38% and Universities are 4.76%.

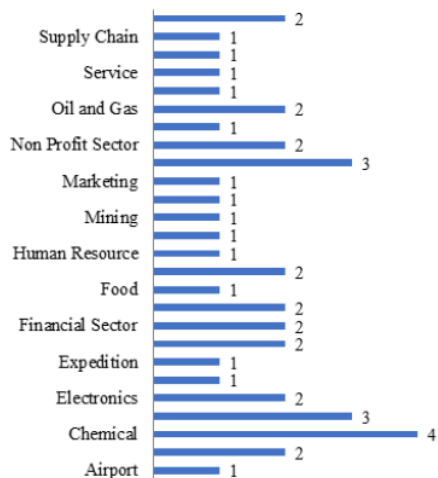


Fig. 2 Implementation Benchmarking in various industries

Based on the Figure 3 the country of origin distribution of the 42 articles reviewed are as follows South Africa is 2.38%, Indonesia is 4.76%, United Kingdom is 4.76%, Malaysia is 2.38%, Hong Kong is 4.76%, Taiwan is 2.38%, Russia is 4.76%, Iran is 4.76%, Oman is 4.76%, Turkey is 2.38%, Chile is 2.38%, Singapore is 2.38%, Kenya is 2.38%, Argentina is 2.38%, Maroc is 4.76%, Sudan is 2.38%, Egypt is 4.76%, Italy is 4.76%, USA is 4.76%, Brazil is 4.76%, China is 4.76%, Australia is 2.38%, South Korea is 2.38%, Romania is 4.76%, France is 4.76%, Belgium is 2.38%, Vietnam is 2.38% and India is 2.38%

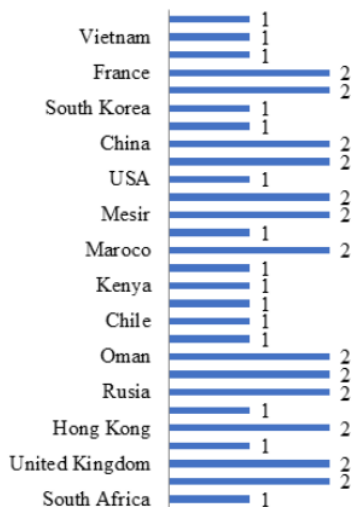


Fig.3 Implementation Benchmarking in various Countries

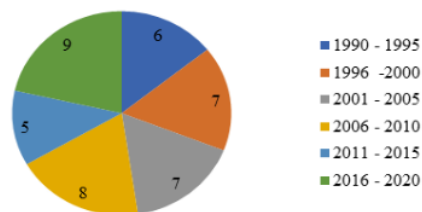


Fig.4 Distribution of Year Benchmarking Articles Publication

Based on the Figure 4 above, the distribution of publication year from 42 articles reviewed is as follows Year 1990 - 1995 was 14.29%, 1996 -2000 was 16.67%, 2001 - 2005 was 16.67%, 2006 - 2010 was 19.05%, 2011-2015 was 11.90%, 2016-2020 was 21.43%.

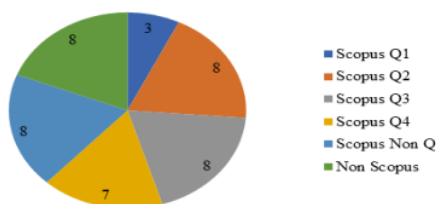


Fig.5 Index Distribution of Articles Benchmarking Publication

Based on Figure 5 above the distribution of journal index index of 42 articles reviewed are as follows Scopus Q1 is 7.14%, Scopus Q2 is 19.05%, Scopus Q3 is 19.05%, Scopus Q4 is 16.67%, Scopus Non Q is 19.05% and Non Scopus is 19.05%

Benefit of Benchmarking Method in Several Industries

According to Mohamed, S. (1996) there are several benefits of benchmarking, namely increasing productivity, increasing quality, increasing safety, reducing costs and environmental awareness, speeding up delivery time. Zairi, M. (1994) benchmarking is a strategic tool to improve quality, increase safety, reduce costs and environmental awareness, speed up delivery time. Gable et al. (1993) benchmarking increasing product sales, reduce costs and environmental awareness, speed up delivery time. Vermeulen, W. (2003) there are several benefits of benchmarking, namely improving company performance, environmental care, speeding up delivery time. Massheder, K. and Finch, E. (1998) are some of the benefits of benchmarking, namely increasing productivity, winning business competition. Hinton et al. (2000) there are several benefits of benchmarking, namely increasing productivity, increasing quality, increasing safety, reducing costs and environmental awareness, speeding up delivery time. Books et al (2003) benefits of benchmarking, namely environmental awareness and work comfort. According to Southard et al. (2007) benefits of benchmarking, namely increasing productivity, increasing quality, increasing safety, reducing costs and environmental awareness, speeding up delivery time. Shen et al (2000)

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Table 2. Characteristics of Benchmarking Articles reviewed

	Safety	Productivity	Cost	Delivery	Quality	Environment
South Africa	√				√	
Indonesia				√		√
United Kingdom	√	√			√	
Malaysia		√				√
Hong Kong		√				√
Taiwan	√			√		
Rusia	√			√		√
Iran				√	√	
Oman		√	√			√
Turkey	√				√	√
Chile	√		√			
Singapore	√	√				√
Kenya	√					√
Argentina		√			√	
Maroco	√					
Sudan			√	√		√
Mesir			√			√
Italy		√			√	√
USA						
Brazil				√	√	
China	√		XV			
Australia	√				√	√
South Korea		√	√			
Romania		√				
France		√	√			
Belgium				√		√
Vietnam	√	√	√	√		
India	√			√	√	

Based on the table above, it can be described the characteristics of the benchmarking article reviewed based on the distribution of the subject of discussion, namely safety cost productivity, delivery quality and environment. The stages in the transfer or benchmark process are initiations - covering all matters that lead to decisions regarding the need to transfer practices, such as discovery, or effective work processes in an organization. Implementation - the flow of resources between the recipient and the source unit, social relations established, and efforts to make the transfer are more acceptable to the benchmarks. Ramp-up - begins when the recipient starts using the knowledge acquired, by identifying and solving unexpected problems, so that performance increases gradually. Integration - starts when the recipient receives satisfactory results with the use of the knowledge acquired, and the process of institutionalizing knowledge and acquired skills. The benchmark process is not cheating but comparing

the existence of a process on the one hand with other parties doing the same process. The analysis results obtained are used as a tool to make improvements so that it can increase work productivity. Please try to benchmark, there must be a lot of positive changes that can be implemented in your organization. According to Pilcher (1999) the level of competitiveness can be increased by benchmarking. Voss (1997) investigates the relationship between benchmarking and operational performance. Competitiveness levels can be improved by benchmarking. According to Present (2003) the benchmarking method has long been recognized as a very important business method of purchasing activities. The main purpose of the benchmarking method, namely benchmarking, is to produce products or services to carry out processes that are at least similar to the best companies that have produced similar products or services or carried out similar processes.

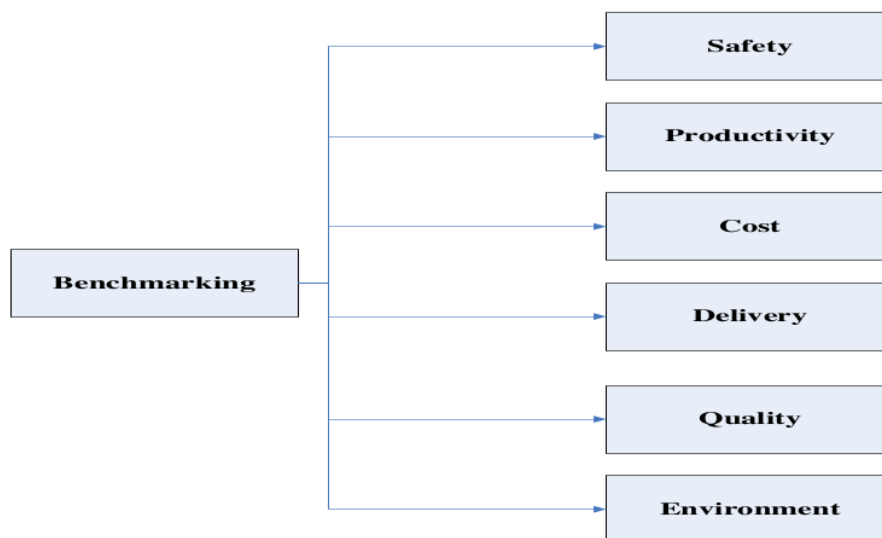


Fig.6 Benchmarking future framework

Competitive benchmarking, specifically each business driver is compared with the company being the reference. For each driver it could be a different company, but on the contrary, it could also happen that there are several drivers in the same reference company. Customer benchmarking, how consumers and customers view the whole: product quality, price, customer service, delivery speed, and delivery reliability (level of trust in delivering goods). The higher the level of customer or customer satisfaction with this will make the company's position in the eyes of consumers or customers stronger. Financial benchmarking, using RONA (return on net assets) will find out which business driver has the highest return. Benchmarking best practices, time and cost are two significant factors of business performance. Benchmarking these two factors will greatly improve company performance and performance. This tendency is hindered by administrative, structural, cultural causes which have a negative effect on the entire organization, including the silo organizational structure, where each unit focuses on its own goals, so that the common interests are more viewed from the viewpoint of each unit. Culture values expertise and knowledge creation is more dominant than culture of sharing expertise. Lack of contact, relationships and shared perspectives within an organization. Systems that do not allow or value efforts to do knowledge sharing or skills

Conclusion

The results of the literature review are found that benchmarking in industrial companies provides benefits that are increased customer satisfaction, increased productivity, increased quality, the implementation of continuous improvement, increased market performance, increased environmental awareness and increased industrial competitiveness. This research can be used as a new reference for researchers to conduct further research and provide the benefit of adding literacy to

other researchers who will examine the topic of benchmarking in the industry. Therefore, every industrial company should benchmark the management system with other companies in order to improve their business performance. To find out how far the success and success of Benchmarking is applied, the following indicators can be seen. Benchmarking is the process of comparing business process performance and metrics including costs, time cycles, productivity, or other qualities that are widely regarded as benchmarks of industry standards or best practices. Basically, Benchmarks provide a snapshot of your business performance and help you understand where you are in relation to certain standards. On another understanding that benchmarking can be interpreted as a systematic method for identifying, understanding, and creatively developing processes, products, service, to improve company performance. Benchmarking is one method which is effective for improving performance company and product quality. Benchmarking can help company to gather information regarding company performance competitors, information from results benchmarking this lets the company know the company's performance gap with competitor, so that could do improved company performance to be better in the future.

Benchmarking has a significant effect on the performance company. Influence that produced by benchmarking to The company's performance is positive means when used benchmarking the higher the result will be more company performance is also high. Example the implication in the company is the company conduct benchmark about level of productivity and manner how to achieve that level of productivity from partner company benchmarks, then from the results benchmark the information will be obtained regarding productivity levels and ways ways to achieve productivity levels partner benchmark. This research has the disadvantage of using the literature

review method, therefore in subsequent studies to use qualitative or quantitative methods.

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