

Benchmarking: The way of success in pharma industry

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Abstract

Benchmarking in industrial companies provides benefits which increased customer satisfaction, productivity, quality, market performance, industrial competitiveness and implementation of continuous improvement. Benchmarking as a tool helps the company to position themselves in the market. Benchmarking, in current times occupies an important place and help in quality enhancement. Benchmarking as a basic of competitive positioning and share an important and valuable information from managerial personnel. This review article includes introduction and history of benchmarking, various types of benchmarking, different phases of benchmarking, process of benchmarking, various approaches of benchmarking, benefits, advantages and disadvantages of benchmarking, what are the cost of benchmarking and application of benchmarking.

Keywords: Benchmarking; Quality; Benefits; Improvement

1. Introduction

In today's highly competitive, rapidly changing global economy, organizations have been compelled to consider and implement a variety of innovative management philosophies and various techniques [1]. To collect the information required for analysis, the organization uses a management information system, which consists of an internal information system and an external information system. A variety of methods and techniques are used for sorting and analyzing information including gap analysis, SWOT analysis, Benchmarking, General Electric matrix, Porter's five market forces, Boston Consulting Group matrix and Ansoff market-products [2]. Benchmarking as a technique has been attract the attention for its effectiveness. It is normally about obtaining understanding through a comparative study and applying it to upgrade of processes, products or services [1]. It is understood as a catalyst for improvement and innovation. It is a tool to support the development of critical areas of business and management to achieve or exceed set goals based on learning from best practices and understanding the processes to achieve these goals [2].

The conception of a benchmark begins from land surveying, being a point of indication of known altitude against which other objects are evaluated. Frederick Taylor introduced the term in his scientific management practices and a benchmark became the competence standard by which a job could be performed. (McNary,1994). Powers (1998) describes how the total quality management movement wherein tangible measurements and hard data were often the measures used, consequently picked up benchmarking as a comparative process to review quality. Metrics acknowledged the higher performance organizations and the "size odd the opportunity" for others (Landry,1993). Benchmarking then stretched out to gap to accomplish better performance (Jackson,1998). Benchmarking is therefore principally a learning experience (Powers,1998). The concept of benchmarking first came to prominently in the business, originally in Japan and then was implemented by firms such as Rank Xerox, as a mean of learning from 'best-in-class' practices or products from different places explain by Underwood 2002 and Murphy,2005.

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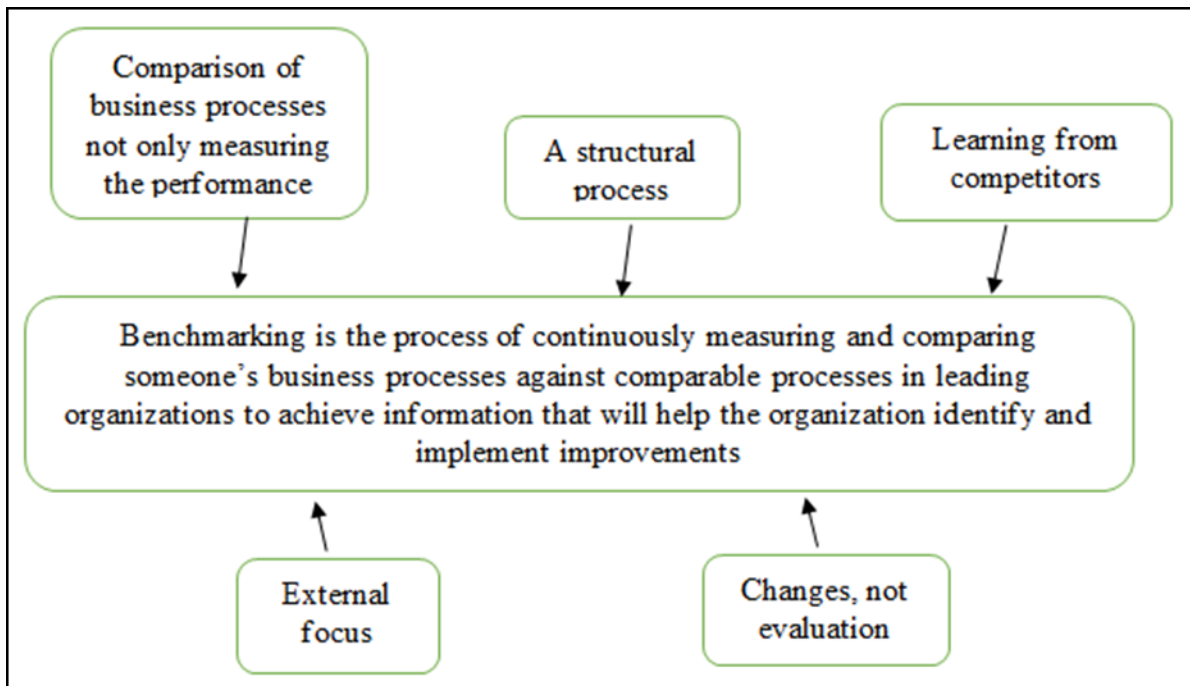


Figure 1 Operational definition of benchmarking [3].

The noun benchmark in Merriam- Webster, has its original meaning as: *something that can be used as a way to judge the quality or level of other, similar things*. There is no singular conventional definition of benchmarking, but it is usually considered to be a method of making enhancements by making evaluations and learning the lessons explained by Boxwell,1994). Many firms have taken benchmarking as a significant business model for enhancing organizational competitiveness. Benchmarking is concerned with attaining knowledge through comparative study and uses it to advance internal operations or processes (Padma,2008; Soni & Kodali,2010) McGonagle and Fleming,1998, state that benchmarking is described as “a euphemism for legally ripping off someone else’s idea”. As McNary (1994) observed “what often gets copied in benchmarking are only the indication of success instead of the causes of success”. As per Robert Camp benchmarking is defined as “the search for the industry’s best practices and the adoption of such practices to ensure superior performance.” (5) It is also an instrument to support organizations identify processes they need to be able to attain precise strategic goals and objectives (Hacker & Kleiner,2000; Rigby and Bilodeau, 2007). Benchmarking is focused on expansion so it complements other upgrading inventiveness. Drucker (2003) considers benchmarking to be one of the latest tools to obtain information on productivity. *The American Center for Productivity and Quality* considers benchmarking to be a “systematic and constant process of measuring and comparing business processes of one organization to business processes of a leader on the world’s market in order to gain information that will help the organization take action to improve their performance” [1]. According to Eschenbach and Siller benchmarking is a continuous process of comparison of our products, services, processes, methods with the best products, services, processes, methods [2]. At the organizational level, critical processes are processed that formulate organizational strategy. The marketing process is one of the critical organizational processes, to improve these processes at the pharmaceutical companies we propose to use a benchmarking process that, among the others, is one of the most effective approaches to improve company performance [3].

Benchmarking should be more about qualitative or process discussion where the benchmarking partners learn about a particular activity of another operation. Without the networking and process discussion, the benchmarking partner is never sure that the quantitative comparisons are valid [6]. The core of the existing interpretation of benchmarking is:

- Measurement: of own and the benchmarking partners’ performance level, both for contrast and for registering enhancement.
- Comparison: of performance levels, procedure, practices etc.
- Learning: from the benchmarking partners to initiate advancement in your own business firm.
- Improvement: which is the eventual purpose of any benchmarking study [1].

There are different types of benchmarking and many process testes models. Gurumurthy and Kodali analyzed the basic benchmarking classification schemes and thus the unique benchmarking models that are developed for each type [4].

Benchmarking types according to Bengt and Ostblomare as follows:

- *Internal benchmarking* by comparing the operation of a section with other internal parts in an organization [2].
- *External benchmarking* done by comparing and measuring with another business, providing the opportunity to learn from the best in same industry [4].
- *Competitive benchmarking* is by comparing 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 [2].
- *Strategic benchmarking* used to improve the overall performance of an enterprise by examining a long-term strategy.
- *Process benchmarking* is used to make more effective use of a given process or activity within an enterprise.
- *Performance benchmarking* is used to determine the position of an enterprise by comparing the performance characteristics of services with other enterprises [4].
- *Product benchmarking* is the basic functional performance and quality features of a company's products are compared and benchmarked with competitors' product with a view to improve the functional features.
- *Financial benchmarking* is the annual financial results are compared and analyzed in order to assess the overall performance productivity and profitability of the concern [11]. *Operational benchmarking* embraces everything from staffing and productivity to the office flow and analyses the procedure adapted.
- *Collaborative benchmarking* is carried out collaboratively by groups of companies either through common consultants or by professional associations or bodies.
- *Matrix benchmarking* involves using information on cost or production information to identify strong and weak performing units.
- The most common forms of quantitative analysis used in metric benchmarking are Data Envelope Analysis (DEA) and regression analysis. DEA estimates the cost level an efficient firm should be able to achieve in a particular market, while regression analysis estimates what the average firm should be able to achieve [5].

Basic parameters of benchmarking should be considered and analyzed during preparation and analysis [4].:

- Objects: products, processes, structure, service, strategies methods, activities.
- Target values, parameters: performance, cost, quality, customer satisfaction, process time, storage time.
- Comparative entities, partners: other departments, other business segments, competitors, improved business.

Some other parameters that can be benchmarked: [5].

- Return on investments,
- return on assets,
- cost per unit,
- cost per order
- net present worth of the shares
- sigma level in quality control
- customer satisfaction index
- sales cost revenue
- service cost/revenue
- service response time
- distribution cost/revenue
- material overheads
- manpower performance ratio
- employee morale.

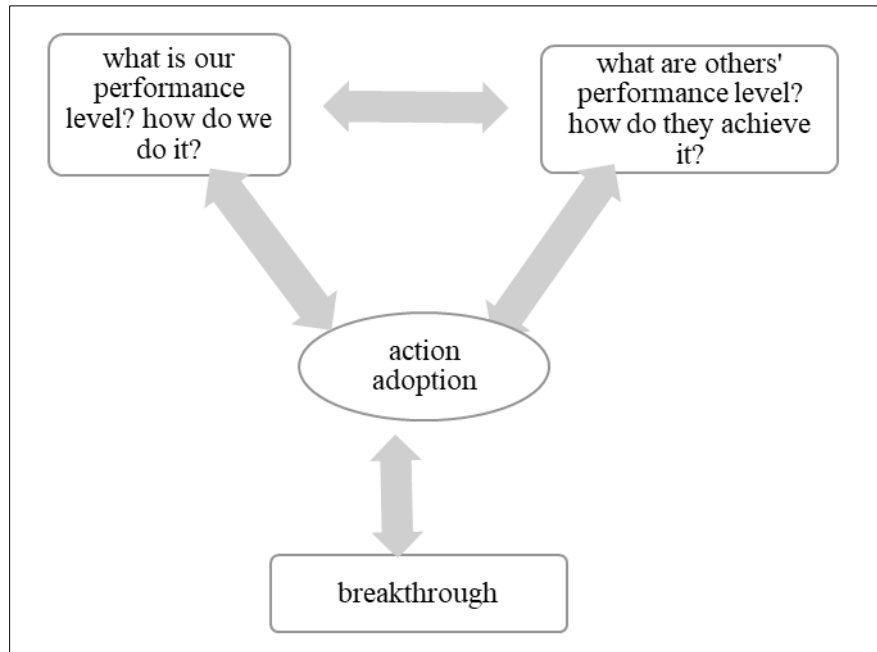


Figure 2 General concept of benchmarking

1.1 Phases of benchmarking [5].

1.1.1 Preparatory phase

When preliminary meeting of all concerned people is called for and the details are explained. The planned phases and procedures are based on which the subsequent phases are planned. The purpose of this phase is to place benchmarking activities on a firm footing.

1.1.2 Planning phase

This is basic phase for conducting benchmarking investigation. Here the plans are developed by addressing the key questions of;

- What is to be benchmarked?
- Who will be the benchmark partners?
- What is the method of data collection?

1.1.3 Analysis phase

When the data is collected is analyzed for the purpose of comparison with other benchmarked companies. The key questions to be addressed are;

- What is the performance of the benchmark partners, for each parameter?
- What is our performance compared to them?
- In what way and in what parameters of their performance is better than ours?
- What is the lesson to be learnt from them?
- How can we apply the lessons to our company?

1.1.4 Integration phase

When the goals are developed and integrated into the benchmarked parameters of process so that significant performance improvements are made. The key questions in this phase are;

- What are the critical proposals given as a result of the analysis?
- Has management accepted the findings?
- What are the goals that are needed to be modified and what are the finally drawn up goals?

- Have all involved parties been clearly communicated about the goals?

1.1.5 Action phase

When detailed action plans needed to achieve the goals are drawn and developed. The key questions that needed to be addressed here are;

- Will the plans allow the achievement of the stated goals?
- How will progress be tracked?
- What is the schedule for recalibration of the benchmarks?

Table 1 Benchmarking innovation process stages (7)

Benchmarking stage	Activities undertaken
Plan	Initial selection of target benchmark partners Secondary source research to identify potential targets
Do	Collection of data from benchmark companies Benchmark visits to 8 organizations Triangulation of information obtained using secondary sources
Check	Analysis of benchmark company processes with respect to their operational context and environment
Act	Development of a framework: people, process and culture for the analysis of innovation in other organizations

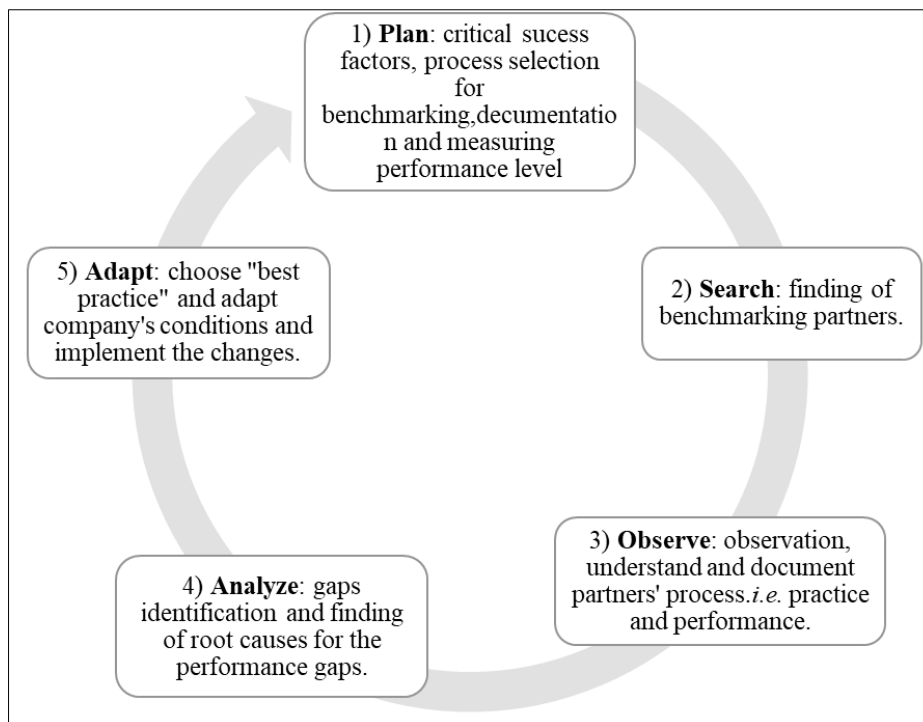


Figure 3 The benchmarking wheel [9].

1.2 Stages of benchmarking [5].

1.2.1 Identify your problem areas

They include informal conversations with customers, employees or suppliers; exploratory research techniques such as focus groups, in depth marketing research, surveys, questionnaires, process mapping, quality control variance reports or financial ratio analysis.

1.2.2 Identify other industries that have similar processes

These could include air traffic control, cell phone switching between towers, transfer of patients from surgery to recovery rooms.

1.2.3 Identify organizations that are leaders in these areas

look for the very best in any industry and in any country. Consult customers, suppliers, financial analysis, trade associations and magazines to determine which companies are worthy of study.

1.2.4 Survey companies for measures and practices

Companies target specific business processes using detailed surveys of measures and practices used to identify business process alternatives and leading companies. Surveys are generally masked to protect confidential data by neutral associations and consults.

1.2.5 Visit the "best practice" companies to identify leading edge practices

Companies mutually exchange information beneficial to all parties in a benchmarking group and share the results within the group.

1.2.6 Implement new and improved business practices

Develop implementation plans which include identification of specific opportunities, funding the project and selling the ideas to the organization for the purpose of gaining demonstrated value from the process.

1.2.7 Repeat the process

Benchmarking is an ongoing, process; best practices can always be improved upon by constant vigilance and analysis of the competitor practices.

Eschengach and Siller present the basic advantages and profits of benchmarking [4, 5].

- It is an effective technique, which helps organizations to create quality targets in the strategic quality management process.
- Best practices could be incorporated in a company's operations; thereby productivity, sales and profitability would increase.
- It provides targets that have been achieved by others.
- Resistance to change from within would be less if ideas come from outside.
- Technical breakthroughs could be identified early, thereby improving upon the quality of the product.
- Advancement in employee's knowledge and experience.
- It helps the company to conduct SWOT analysis to learn its weaknesses and the scope of improvement.
- Customers' requirements can be met in a more systematic manner.
- Effective goals can be set and achieved.
- Benchmarking is systematic method by which an organization can continuously measure themselves against the best industry practices or world class or best in class and improve accordingly.
- Use of analysis, planning, control, communication.
- Benefits of competition,
- New impulses from best practice.
- Comparing actual status and potential for improvement.
- More focus on market requirements.

1.3 Benefit of benchmarking [8].

Rank xerox recognized that,

- Benchmarking brings innovative ways of managing operations.
- It is an effective team management tool.
- It increases general awareness of costs and performance of product and service related to competitor organizations.
- It is precise way for measuring gaps in performance and service.
- It helps in establishing the goals which brings productivity levels equal to or better than the competitors.

Eschengach and Siller present basic disadvantages and risk of benchmarking: [4-5].

- It involves subjective judgement.
- It requires a thorough understanding of current products and processes.
- Difficult to obtain detailed and useful information about the competitors.
- Ensuring comparable conditions to allow a proper comparison.
- Time consuming process.
- Bad results are obtained uncertainly.
- Entire process is cost effective.

According to Dewitt (1996) To conduct benchmarking, it can be done in four ways which are as follows:

- In-house research, conducting an assessment of information within the company itself as well as available in the public,
- Third-Party Research, financing benchmarking activities to be carried out by surveyor or companies,
- Direct Exchange, direct exchange of information can be done by questionnaires, telephone survey etc.
- Direct visits to benchmarking partner locations (this method is most effective).

According to Chen (2002) the benchmarking strategy in improving company / organization performance is carried out comprehensively through [2].:

- adjusting the vision, mission and objectives,
- analyzing the strategic environment,
- determining the benchmarking topic,
- determining the superior company for benchmarking objectives and
- forming a benchmarking team.

1.4 Different approaches to benchmarking [5].

Robert Camp, summarized procedure in 12 steps:

- Select the subject ahead
- Define the process
- Identify the potential partners
- Identify the data source
- Collect data and select partners
- Determine the gap
- Establish the process differences
- Target future performances
- Communicate
- Adjust goal
- Implement
- Review/recalibrate

1.5 Rank Xerox’s 10 step procedure: (5)

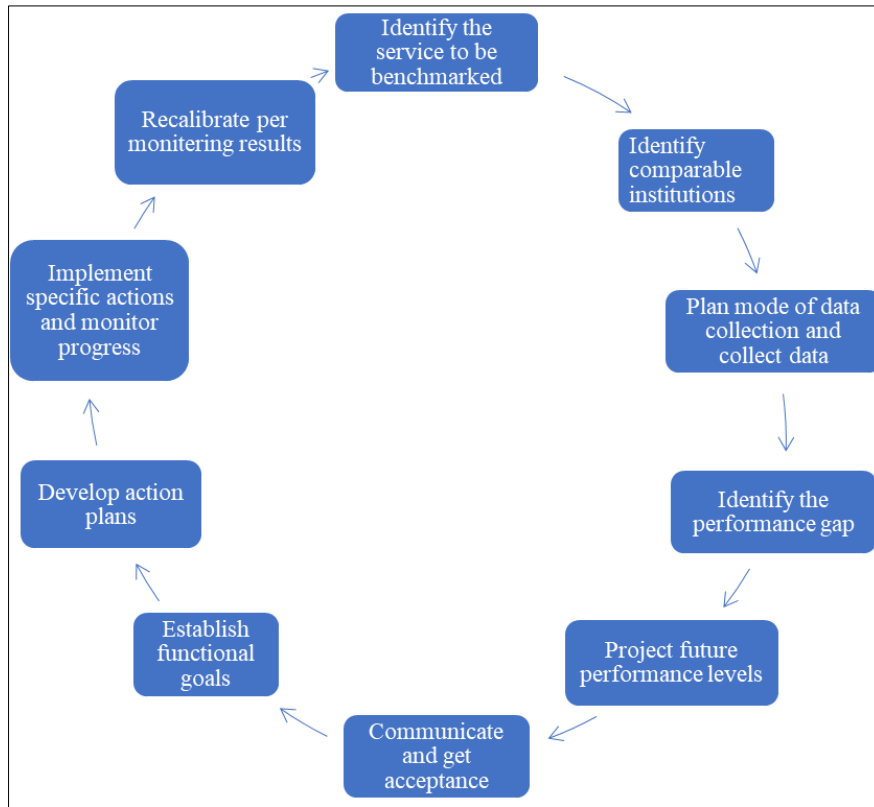


Figure 4 Rank Xerox’s 10 step procedure

The benchmarking process, should include the following steps: [6].

- Defining where you are in the activity to be benchmarked, this includes understanding the relevant policy that exists in the region to be benchmarked.
- Determine the level of performance that is required in the given activity &
- Determine how and what type of performance is implemented to achieve targets and in what time limit.

1.6 Texas instruments: [8].

Texas instruments’ quality approach is based on five key pillars, one of the main pillars is benchmarking which is described as; Benchmarking is a quality tool that allows to assess ourselves and our competitors. Through that knowledge, teams will develop and implement plans and strategy to achieve total customer satisfaction.

Texas instruments also include a list of Do’s and Don’ts:

1.7 Do’s of benchmarking:

- Do you know your own process before trying to contact other company for benchmarking?
- Do get management commitment before trying to benchmark.
- Do implement changes or improvements as a result of benchmarking.
- Do keep communication during project work, especially with benchmarking expert or champion.
- Do use flowchart, roadmaps for benchmarking project.
- Do use internal, competitive, process, performance benchmarking.

1.8 Don’ts of benchmarking:

- Don’t benchmark just for the reason of benchmarking.
- Don’t benchmark if you haven’t management support.
- Don’t benchmark unless you understand the process you are benchmarking.

- don't overlook public domain research.
- Don't forget to implement.

1.9 Costs of benchmarking: [4, 5].

Cost benchmarking, which identify potential areas for improvement in overall costs. Benchmarking is generally expensive though many companies find that profit would be more than pay off. Major benchmarking costs are:

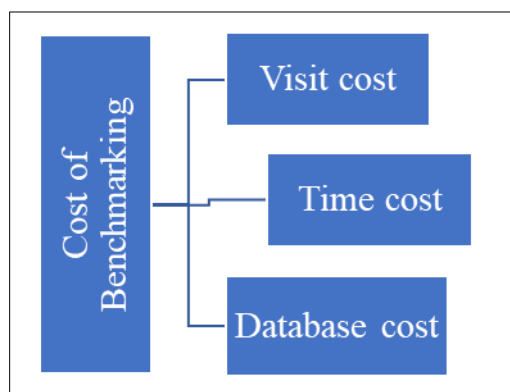


Figure 5 Costs of benchmarking

- Visit costs: It include travelling, living arrangement, token gifts and other extra expenditure.
- Time costs: benchmarking team will be investing their time and energy for collection and analysis of data and their implementation.
- Database costs: after having collected and analyzed the data, if companies find it useful to maintain a database of best practices. It will be helpful for their future reference as well as sharing with other companies.

1.10 Applications of benchmarking

There are various areas where benchmarking has been applicable like:

- Career management, Environment, Finance, Food and Drink Industry, Health and Safety management, Human Resources, Information Technology, Library, Manufacturing, Marketing, Operational Performance, Performance Measurement, Pre-Project Planning, Product Development, Research and Development, Risk management, Safety management, etc [10].

Some other applications of benchmarking are:

1.10.1 Benchmarking in the Healthcare System

It was first applied in 1990 with the requirement of the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) in the United States. Benchmarking can be done internally in very large organizations (Hospitals), in which it is possible to compare outcomes in similar services and the benefit of internal benchmarking is that it is rapid and too costly. For external benchmarking of clinical practices, it is difficult, given the medical specificity of the indicators to be used, to see how these practices might be compared against other sectors. For non-clinical processes (traceability of products used, billing, and so on), comparison with other sectors is possible. So, comparison with sectors in which traceability is crucial, such as the pharmaceutical industry or any other sectors with strong quality assurance, could be worthwhile [11].

1.10.2 Benchmarking Green Chemistry Adoption by the Global Pharmaceutical Supply Chain

Adoption of GC (Green Chemistry) by the entire pharmaceutical supply chain helps in cost savings and environmental regulations. Most "Big Pharma" such as Pfizer, Allergan, Novartis, Sanofi have adopted green chemistry to some extent. In India, there are some barriers to an implementation of GC such as lack of available green technologies, scale-up and commercialization, myths that GC is difficult and complex and thus not viable for small and medium sized companies and time and cost involved in filing a new Drug Master File (DMF) application when a change is made in the manufacturing process [12].

1.10.3 *In project management*

Use of benchmarking is widening as a technique for supporting project management. It describes as the search for the best practices and leads to greater performance of the organization. As the success of benchmarking depends on the use of the tools for gathering and analyzing information and deriving afterward improvement projects [13].

Use of the benchmarking in biotechnology industries as a comparative perspective [14].

1.10.4 *Use of Benchmarking in the development of biopharmaceutical products*

Benchmarking has become a tool for obtaining the information needed to support continuous improvement and gain a competitive advantage. This process provides a new perspective on traditional methods [15].

1.10.5 *Benchmarking in Total Quality Management (TQM)*

Assess the gap between the current and ideal status of the quality management system and improve the performance of organizations [16].

2. Conclusion

Benchmarking in all industrial companies provides benefits that increased customer satisfaction, improve quality, increased productivity, implementation of continuous and effective improvement, increased market performance, awareness and increase competitiveness. Benchmarking is the process of comparison of business process performance, costs, time cycles, productivity and other qualities that are regarded as benchmarks of industry standards. Basically, benchmarking provides an overview of your business performance and help to understand where you are in relation to competitiveness and standards. It is one method which is effective to improve a company's performance and product quality. So, company's overall performance will be better in the future. Recurrent and regular benchmarking help to generate clear and significant plans that are based on present scenario rather than past performance and which can remain step-by-step expansion in performance over time. Benchmarking process when applied properly, allow management to determine that why something is better than us by a comparison of key performance indicators.

Compliance with ethical standards

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This review article does not conflict with any prior work.

References

- [1] Bala KM and D'Lima C. "Benchmarking as a measure of competitiveness", *International Journal of Process Management and Benchmarking*, 2017; 1-17.
- [2] Rousek P and Haskova S. "The Methodology of Simple Comparisons as a Replacement for Comprehensive Benchmarking in Controlling", *SHS Web of Conferences*, 2020; 73, 1-6.
- [3] Bjorn A. "Industrial Benchmarking for Competitive Advantage Human System Management", 2014, 287-296.
- [4] Purwanto A, Sutia S, Riadi R, Fahlevi M, Istan M, Juhara S, Pramono R, Purba JT, Munte AP and Juliana. "Benefit of Benchmarking Methods in Several Industries: A systematic Literature Review", *Systematic Review in Pharmacy*, 2020; 11(8): 508-218.
- [5] Goncharuk AG and Getman M. "Benchmarking to improve a strategy and marketing in pharmaceuticals", *Benchmarking: An International Journal*, 2014; 21(3), 364-385.
- [6] D.R. Kiran, "Total Quality Management: An Integrated Approach", BS publication, 2016; 457-466.
- [7] Stephen H, Benchmarking Your Firm's performance With Best Practice *International Journal of Logistics Management*,* 1997; 8(2), 1-17.

- [8] Radnor Z and Robinson J, "Benchmarking Innovation: A Short Report Creativity and Innovation Management". 2000; 9(1): 1-11.
- [9] Z Mohamed. "Effective Management of Benchmarking Projects: Practical guidelines & examples of best practice", 1st Edn; Routledge Taylor & Francis Group, New York. 1998; 1-400.
- [10] Dutta Kumar R and Jagadeesh R, "A Review of Literature on Benchmarking", Benchmarking: An International Journal, 2003; 10(3): 176-209.
- [11] Ettorchi AT Levif M and Michel P. "Benchmarking: A Method for Continuous Quality Improvement in Health" Healthcare Policy. 2012; 7(4): 101-119.
- [12] Veleva VR, Berkeley WC and Todorova S. "Benchmarking Green Chemistry Adoption by the Global Pharmaceutical Supply Chain ACS Sustainable Chemistry & Engineering", 2017; 1-13.
- [13] Dey PK. "Benchmarking project management practices of Caribbean organizations using analytic hierarchy process ", Benchmarking: An International Journal, 2002; 9(4): 326-356.
- [14] Rosa M, Yague P, Niosi J and Isidre M. "Benchmarking Biotechnology Industries: A Comparative Perspective "
- [15] International Entrepreneurship and Management Journal, 2015; 11(19-38): 1-10.
- [16] Giffin M and Mcleish S. "Use of Benchmarking in the Development of Biopharmaceutical Products Biotechnology" Annual Review. 2003; 9: 279-284.
- [17] Sweis RJ, Al-Ghawi HJ, Alsaleh NA, Zu'bi MF and Obeidat BY. "Benchmarking of TQM: the case of Hikma Pharmaceuticals Company", Benchmarking : An International Journal, 2015; 22(3): 488-504.