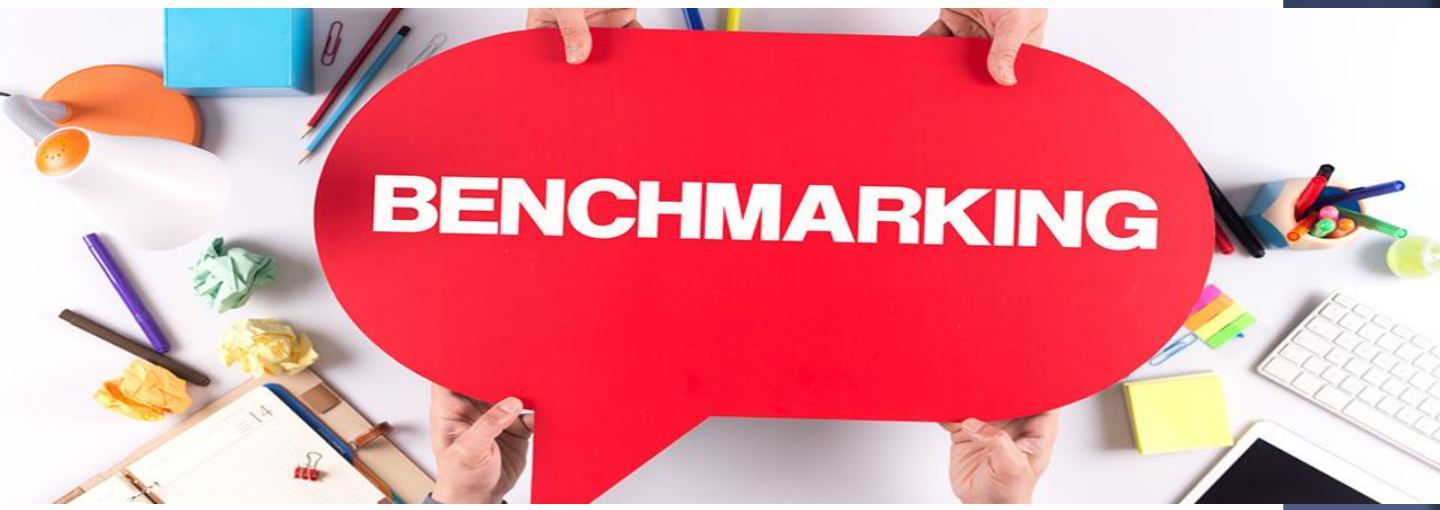
ARRELIC INSIGHTS
BENCHMARKING

ARRELIC RELIABILITY PVT. LIMITED

Benchmarking is the way toward looking at one's business procedures and execution measurements to industry bests or best practices from different ventures measurements commonly estimated are quality time and cost in along these lines they figure out how well the objectives perform and all the more essentially the business forms that clarify why these organizations are fruitful benchmarking is utilized to gauge execution utilizing a particular marker cost for each unit of measure efficiency per unit of measure process duration of X per unit of measure or imperfections per unit of measure bringing about a metric of execution that is then contrasted with others likewise alluded to as best work on benchmarking or process benchmarking this procedure is utilized as a part of administration and especially key administration in which associations assess different parts of their procedures in connection to best practice organization's procedures.



For the most part with a show up assemble characterized for the motivations behind correlation this at that point enables associations to create anticipates how to make enhancements or adjust particular accepted procedures generally with the point of expanding some part of execution benchmarking might be an erratic occasion yet is regularly regarded as a ceaseless procedure in which associations constantly look to enhance their practices advantages and use in 2008 an exhaustive study on benchmarking was charged by the worldwide benchmarking. System a system of benchmarking focuses speaking to 22 nations.

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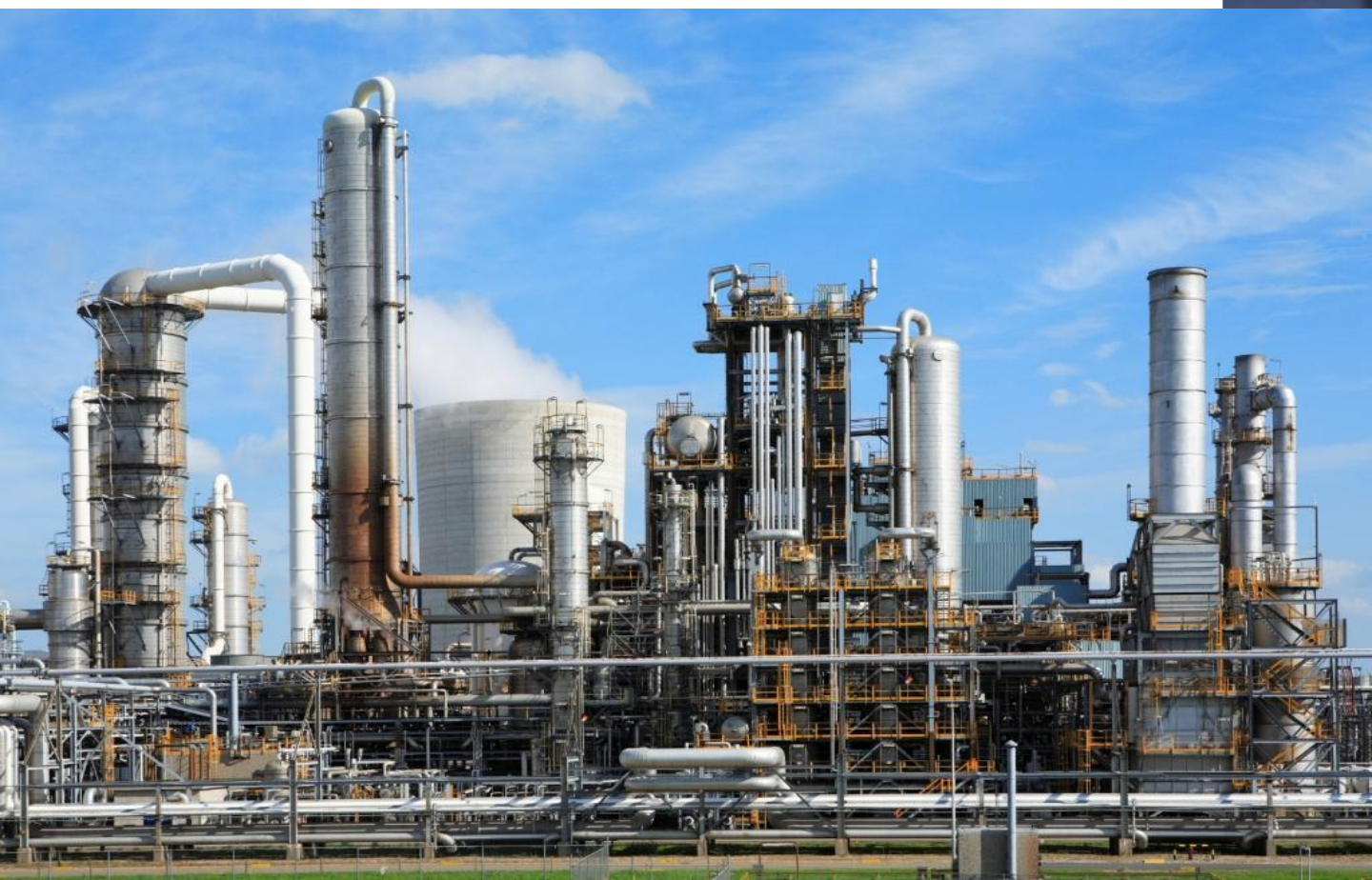
More than 450 associations reacted from more than 40 nations the outcomes demonstrated that mission and vision explanations and client customer overviews are the most utilized by 77% of associations of 20 change apparatuses took after by SWOT investigation 72% and in formal benchmarking 68 percent execution benchmarking was utilized by 49% and best work on benchmarking by 39 percent the devices that are probably going to increment in fame the most finished the following three years are execution benchmarking casual benchmarking SWOT and best work on benchmarking more than 60% of associations that are not right now utilizing these devices showed they are probably going to utilize them in the following three years shared benchmarking.

Benchmarking originally described rank Xerox is usually carried out by individual companies sometimes it may be carried out collaboratively by groups of companies for example subsidiaries of a multinational in different countries one example is that of the Dutch municipally-owned water supply companies which have carried out a voluntary collaborative benchmarking process since 1997 through their industry association another example is the UK construction industry which has carried out benchmarking since the late 1990s again through its industry association and with financial support from the UK government. developed a 12 stage approach to benchmarking.



Procedure: There is no single benchmarking process that has been universally adopted. The wide appeal and acceptance of benchmarking has led to the emergence of benchmarking methodologies. One seminal book is Box Well's benchmarking for competitive advantage 1994, the first book on benchmarking written and published by Kaiser associates, is a practical guide and offers a seven step approach.

Robert camp, who wrote one of the earliest books on benchmarking in 1989 "The 12 stage methodology" consists of select subjects to define the process, identify potential partners to identify data sources, collect data and select partners determine the gap and establish process differences to target future performance. Communicate but just goal implement review and recalibrate the following is an example of a typical benchmarking methodology recognition problem areas because benchmarking can be applied to any business process or function. A range of research techniques may be required, they include informal conversations with customers, employees or suppliers. Exploratory research techniques such as focus groups or in-depth marketing research, quantitative research surveys, questionnaires, re-engineering analysis and process mapping quality control variance reports financial ratio analysis or simply reviewing cycle times or other performance indicators before embarking on comparison with other organizations it is essential to know the organization's function and processes base lining performance provides a point against which improvement effort can be measured . Identify other industries that have similar processes for instance if one were interested in improving handoffs in addiction treatment, one would identify other fields that also have handoff challenges .

These could include air traffic control, cell phone switching between towers, transfer of patients from surgery to recovery rooms. Identify organizations that are leaders in these areas look for the very best in any industry and in any country. Consult customers suppliers financial analysts, trade associations and magazines to determine which companies are worthy of study. 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 typically masks to protect confidential data by neutral associations and consultants visit the best practice companies to identify leading-edge practices. Companies typically agree to mutually exchanged information beneficial to all parties in a benchmarking group and share the results within the group.

Implement new and improved business practices take the leading edge practices and 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. The three main types of costs in benchmarking are visit costs this includes hotel rooms, travel costs, meals, a token gift and lost labour time. Time costs members of the benchmarking team as they will be investing time in researching problems finding exceptional companies to study visits and implementation. This will take them away from their regular tasks for part of each day so additional staff might be required for benchmarking database costs. Organizations that institutionalize benchmarking into their daily procedures find it is useful to create and maintain a database of best practices and the companies associated with each best practice. Now the cost of benchmarking can substantially be reduced through utilizing the many internet resources that have sprung up over the last few years.

These aim to capture benchmarks and best practices from organizations, business sectors and countries to make the benchmarking process much quicker and cheaper. Technical product benchmarking, the technique initially used to compare existing corporate strategies with a view to achieving the best possible performance in new situations see above has recently been extended to the comparison of technical products this process is usually referred to as technical benchmarking or product benchmarking its use is well developed within the automotive industry automotive benchmarking where it is vital to design products that match precise user expectations at minimal cost by applying the best technologies available worldwide data is obtained by fully disassembling existing cars and their systems such analyses were initially carried out in-house by car makers in their suppliers however as these analyses are expensive they are increasingly being outsourced to companies who specialize in this area outsourcing has enabled a drastic decrease in costs for each company by cost sharing and the development of efficient tools standards software types.

Benchmarking can be internal comparing performance between different groups or teams within an organization or external comparing performance with companies in a specific industry or across industries within these broader categories. There are three specific types of benchmarking:

•Process benchmarking
•Performance benchmarking
•Strategic benchmarking

These can be further detailed as follows:

Process benchmarking :
The initiating firm focuses its observation and investigation of business processes with a goal of identifying and observing the best practices from one or more benchmark firms. Activity analysis will be required where the objective is to benchmark cost and efficiency. Increasingly applied to back office processes where outsourcing may be a consideration, financial benchmarking, performing a financial analysis and comparing the results in an effort to assess your overall competitiveness and productivity. Benchmarking from an investor's perspective, extending the benchmarking universe to also compare to companies that can be considered alternative investment opportunities from the perspective of an investor benchmarking in the public sector functions is a tool for improvement and innovation in public administration where state organizations invest efforts and resources to achieve quality efficiency and effectiveness of the services they provide.

Performance benchmarking : Allows the initiator firm to assess their competitive position by comparing products and services with those of target firm's product. Benchmarking the process of designing new products or upgrades to current ones, this process can sometimes involve reverse engineering which is taking apart competitors products to find strengths and weaknesses .

Strategic benchmarking involves observing how others compete to this type is usually not industry specific, meaning it is best to look at other industries.

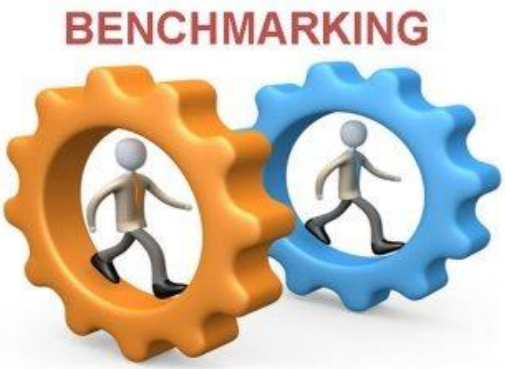
Functional benchmarking a company will focus its benchmarking on a single function to improve the operation of that particular function.

Complex functions such as Human Resources finance and accounting and information and communication technology are unlikely to be directly comparable in cost and efficiency terms and may need to be disaggregated into processes to make valid comparison. Best-in-class benchmarking involves studying the leading competitor or the company that best carried out a specific function. Operational benchmarking embraces everything from staffing and productivity to office flow and analysis of procedures performed . Energy benchmarking process consists of collecting analyzing and relating energy performance data of comparable activities with the purpose of evaluating and comparing performance between or within entities. Entities can include processes, buildings or companies. Benchmarking may be internal between entities within a single organization or subject to confidentiality restrictions or external between competing entities tools.

Benchmarking software can be used to organize large and complex amounts of information. Software packages can extend the concept of benchmarking and competitive analysis by allowing individuals to handle such large and complex amounts or strategies such as tools support. Different types of benchmarking seen above and can reduce the above cost significantly.

Benchmarking another approach to making comparisons involves using more aggregative cost or production information to identify strong and weak performing units.

The two most common forms of quantitative analysis used in metric benchmarking or data envelope analysis DEA and regression analyses DEA estimates the cost level and efficient firm should be able to achieve in a particular market in infrastructure regulation. DEA can be used to reward companies and operators whose costs are near the efficient frontier with additional profits. Regression analysis estimates what the average firm should be able to achieve with regression analysis firms that performed better than average can be rewarded while firms that performed worse than average can be penalized. Such benchmarking studies are used to create yardstick comparisons allowing outsiders to evaluate the performance of operators in an industry. Advanced statistical techniques including stochastic frontier analysis have been used to identify high and weak performers in industries including applications to schools, hospitals, water utilities and electric utilities. One of the biggest challenges for metric benchmarking is the variety of metric definitions used among companies or divisions definitions may change over time within the same organization due to changes in leadership and priorities the most useful comparisons can be made when metrics definitions are common between compared units and do not change so improvements can be verified.



Potential areas of BENCHMARKING

Potential areas of benchmarking at macro-level

In macro-level, Benchmarking exercise of an organization can be with respect to:

1. Performance benchmarking: For key output measures, key performance measures and indicators.
2. Process benchmarking: Processes used such as order entry, customer inquiry, problem resolution, warehouse fulfillment, billing and collection. For process improvement — cycle time, efficiency, inventory, process outcomes etc.
3. Best practice benchmarking: For mastering 'best- practice' by understanding, sharing and adoption.
4. Best practice modelling: For modelling of best practices for organizational restructuring and adoption.
5. Customer requirements such as products and services.
6. Products manufactured for example, copiers and repair parts.
7. Critical success factors such as customer satisfaction levels, delivery service, unit costs and asset utilization.
8. Products purchased such as components and material handling equipment.

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About Arrelic

Arrelic is a fast-growing deep-tech firm aiming to bring the next level of IoT based sensor technology to transform the mode of manufacturing operation and maintenance practice of various industries with extensive expertise in Reliability Engineering, Predictive Maintenance, Industrial Internet of Things (IIoT) Sensors, Machine Learning and Artificial Intelligence. We provide a single ecosystem for catering all industry needs from Consulting to IoT and Analytics as well as providing Training and Development courses for different stakeholders. We aim to help manufacturing industries to improve their overall plant productivity, reliability and minimize total production cost by 25-30% by eliminating machine downtime, lightening management decisions by analysing the machine data with right mind and expertise; for a worry free operation.

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