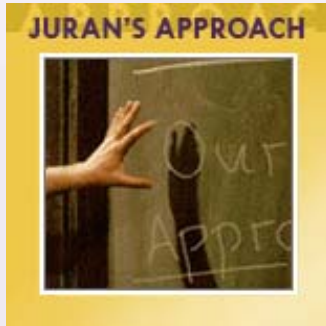


# JURAN'S *Benchmarking Approach*











## Juran's Benchmarking Approach at a Glance

Juran's proven benchmarking approach goes beyond numerical analysis and always includes a "learning" phase focusing on the transfer of knowledge from best practices. Thanks to many years of close collaboration with representatives of the top-5 oil and gas majors, Juran's benchmarking methodology produces a comprehensive analysis, through a normalization process that accommodates the effects of size, capacity, utilization, etc.

Our company rigorously reviews the various benchmarking protocols on an annual basis. This has led to the development of some unique Juran service features.

### Unique Juran Features:

- 7-Step Benchmarking Process 
- Juran Complexity Factor 
- Juran Hydrocarbons Index 
- Validation 
- Help Desk 
- Confidentiality 
- Best Practice Forums 
- Members Website 

### 7-Step Benchmarking Process

Each of our hydrocarbons benchmarking studies goes through a well structured and refined benchmarking process, consisting of seven consecutive steps. As the figure below illustrates, these steps are divided into two phases: positioning analysis and learning from best practices.

**Step 1. Planning & Setup:** Benchmarking Kick Off Meeting – Juran and partners gather to discuss and agree upon Key Performance Indicators (KPIs) – focus on efficiency and effectiveness for key cost drivers (e.g. maintenance, operations, overheads, energy, environment, safety, up/downtime, etc.). A Metrics Model is developed, deadlines are set and confidentiality agreements signed.

**Step 2. Data Collection & Normalization:** Involves the design of a Data Collection Document (DCD), the selection of appropriate units of measurement, and the development of a glossary of definitions (to avoid confusion and misinterpretation). The data collection begins with the circulation of the electronic DCD to partners and continues with support from Juran Help Desk, available during the entire phase, assisting data collectors with queries. Finally, each facility is visited by an engineer to perform complexity factor calculations.

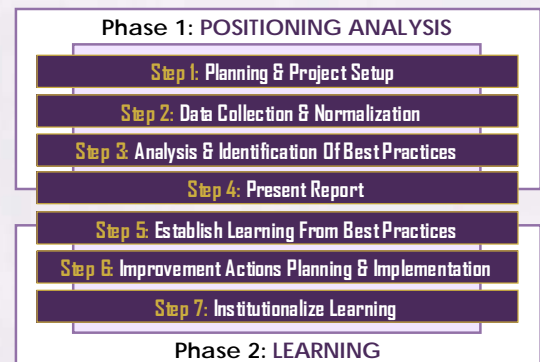
**Step 3. Analysis, Validation & Identification of Best Practices:** Once the DCDs are submitted to Juran, data is validated and processed. Data analysis will result in reports containing: a) identification of practices in the key performance areas; b) a performance positioning overview and Juran Hydrocarbons Index score (both covering all key cost and time drivers of each facility); and c) performance gap analysis for each individual partner.

**Step 4. Present Report:** A month after completion of Step 3, Juran Institute is ready to present a final report, prepared for each partner and in line with the confidentiality agreement.

**Step 5. Establish Learning:** The Best-in-Class (BIC) practitioners are invited to present to partners pre-set key topics.

**Step 6. Improvement Action Plans & Implementation:** Implement learning points.

**Step 7. Institutionalize Learning:** Benchmarking should not be an isolated activity but part of continuous improvement. Thus, Juran offers a continuous learning database.



# JURAN'S *Benchmarking Approach*

## Juran Complexity Factor <sup>®</sup>

To be able to realistically compare the various value chain operations, Juran has developed a normalization technique that makes realistic (apple-to-apple) comparisons of heterogeneous hydrocarbons facilities. The uniqueness of the technique is in its uniform approach to all oil and gas exploration, transportation, processing and storage assets. It is called Juran Complexity Factor (JCF) and is an overall measurement of the complexity of the facility routine operation and maintenance, calculated from the standardized description of its equipment. This is an empirical system that relies on a library of weight factor values (WF) for standard modules of equipment (i.e. loading arms, sumps, oily water treatment, pumps, dew point control units, slug catchers, electrical sub stations, HVAC systems, emergency shut-down systems, etc.). In the WF library each module of equipment is given a specific value of WF, based on the aggregate of the worldwide operational and maintenance hours. For each facility, each module of equipment is identified and the arithmetic total of the WF's gives the final CF score. (More information about the CF normalization is available on our secure website.)

## Confidentiality

Strict confidentiality as well as abidance with the Benchmarking Code of Conduct is guaranteed. In a competitive benchmarking study, keeping the anonymity and integrity of the participant's data is of paramount importance. To respect this necessity, all participants must sign a confidentiality agreement.

## Validation

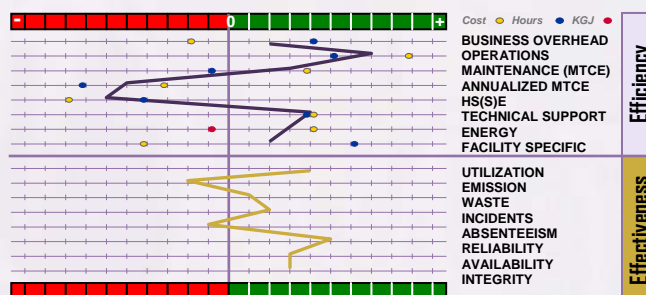
The findings of the benchmarking process are as good as the quality of the data submitted. Juran spends some 30% of the benchmarking process on data validation. Juran has put in place a rigorous validation process that employs all of the company's expertise, accumulated through the years, and ensures that dubious data is not included in the comparative analysis. There are 3 levels of data validation.

## Help Desk

Customer support is provided through our help desk. To facilitate the data submission and validation process, Juran sets up a help desk that is available during the entire project duration. The desk provides professional advice on how to fill the data collection document, answers questions related to a specific study, and send queries for validation purposes.

## Juran Hydrocarbons Index <sup>®</sup>

Benchmarking methods have continually evolved. The oil and gas industry has witnessed this development through the introduction of new approaches to benchmarking, wider variety of performance metrics, and different normalization procedures, all aiming to provide a more accurate and informative picture of performance. Despite this progress, the industry has lacked a consistent and scientifically sound methodology for measuring overall operational performance. In response to this, Juran has developed a methodology that is expressed in the form of a single index, the Juran Hydrocarbons Index (JHI). This Index is a cumulative indicator of the overall competitiveness of an asset, based upon efficiency and effectiveness of its performance. It is a numerical value representing the percentage deviation of performance, relative to the corresponding industry or peer group average.



*The JHI is patented. For more information on the index, please consult our website.*

## Best Practice Forums

Best Practice Forums guarantee a learning experience. At the end of each benchmarking project Best Practice Forums are organized. This is an event that aims to transfer knowledge from the best practitioners to the other benchmarkers. The forums typically have duration of two days. They also provide an excellent environment to meet oil and gas experts and exchange ideas.

## Members Website

Juran's benchmarking members website further enhances the communication and sharing of information between our benchmarking partners. It is available 24/7 and has many features (i.e. news section, knowledge center, electronic benchmarking reports, DCDs, discussion forums, help desk, etc.). The site access is restricted for unauthorized visitors (not members of our benchmarking consortium).