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Determination of what to benchmark : a customer-oriented methodology

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Abstract :

Managers , in their quest for efficient management tools, attach more and more importance to benchmarking techniques as action-oriented démarches to set functional goals. Yet, benchmarking having essentially been developed by Industry, different approaches coexist and still need to be federated and made coherent.

This paper stresses the lack of tools in one of the stages in the benchmarking process, which is considered by experts as a key one : the determination of "what to benchmark".

A methodology aiming to identify the process - or the activity - to benchmark is presented.

Key-words :

Benchmarking - Methodology - Order Winning Criteria - GRAI method - modelling techniques - objectives - key drivers - performance indicators

1. INTRODUCTION

For the last ten years, the Industrial World has paid more and more attention to benchmarking techniques. E.E. Sprow for instance, **[15]** provides an interesting figure from a 1992 survey undergone among American firms : 79 % of them feel they must benchmark to survive.

J.A. Schmidt also speaks about recent studies by Towers Perrin, the Massachussets Institute of Technology and the American Productivity and Quality Center, indicating that, "by 1995, most major US companies will have some type of benchmarking program" **[13]**.

The growing interest brought to these techniques essentially lies in the pragmatism and applicability of such approaches, especially in a time when Management suffers from a crisis in its theory and concepts.

Historically, benchmarking has first been implemented by Industry before being conceptualised and theorised *a posteriori* by academic researchers (the opposite process is much more commonly encountered).

A positive aspect of such a process is that it stresses the real need and interest of Industry for Benchmarking.

A negative aspect is the lack of methodology it induces : today, one cannot find the "benchmarking toolkit". Still taken from the above quoted 1992 American survey **[15]**, another key figure indicates that "95 % of companies admit they do not know how to benchmark".

In **[2]** , two definitions are provided, one of them giving prominence to the central theme of the current paper.

A. Rolstadås (ed.), *Benchmarking — Theory and Practice*

"Benchmarking is the continuous process of measuring products, services, and practices against the toughest competitors or those companies recognised as industry leaders to achieve superior performance" (Rank Xerox)

"Benchmarking is the ongoing task, at all levels of our business, of finding and implementing world best practice ***in the key things we do that deliver customer satisfaction"*** *(PA Consulting Group)*

This last definition focuses on what we believe to be the key point : in order to be efficient, the benchmarking process should be applied only on those activities in the company that have impact on the products, services and practices characteristics contributing to the customers' satisfaction. The identification of the benchmarking object is considered by Camp [4] as one of the most difficult phases in the whole process.

This paper is structured as follows :

In a first part, we recall the main principles in the overall benchmarking démarche, stress the importance of the "identification of what to benchmark" sub-phase and provide a State of the Art of the existing methodological elements in this domain.

Then, in a second part, we propose a methodology aiming to support managers in determining what should be benchmarked in their company.

Finally, we conclude on the necessity of undergoing such benchmarking improvement actions continuously and consequently, of updating regularly the gathered data.

2. IDENTIFICATION OF WHAT TO BENCHMARK

2.1. The overall benchmarking process

Despite of the different approaches, most authors now agree upon depicting four main stages in a benchmarking study, plus a fifth one called "maturity".

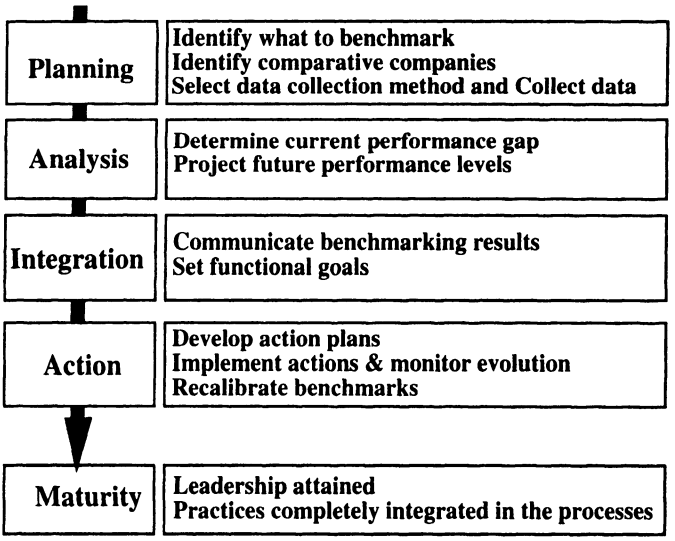

Fig. 1 : Steps in the benchmarking process [4]

Concurrent approaches exist (see for instance AT&T's 12-step and Alcoa's 6-step processes in [1]). Yet, all of them include the "very heart of benchmarking" as depicted hereafter.

- an internal analysis of the company, ending in the identification of those processes, activities or functions that constitute "improvement urgencies";
- an environmental survey for determining the leading enterprises (i.e. having the "Best Practices");
- a calculation of the "performance gap", by comparing performances obtained in the company and in the previously defined leading enterprises;
- a planning and implementation of improvement actions, chosen and agreed by all actors in the company.

2.2. Importance of determining the right processes to benchmark

Indeed, benchmarking can help companies in their continuous improvement process. But benchmarking's efficiency is proportional to the attention paid to the determination of the activity to benchmark. Unfortunately, as J.A. Schmidt points out :

"Much of the benchmarking done today is irrelevant to making money or besting competitors. Rather than focus on what's truly important, companies benchmark what they can" [13].

First of all, costs of a benchmarking study should not be neglected.

According to AT&T's benchmarking group [8], a "medium size" benchmarking study (4 to 6 months) costs between $60.000 and $80.000 (including manpower).

The International Benchmarking Clearinghouse surveyed its membership and got these numbers [15] :

Benchmarking training : $ 1.000/employee/year,
Total costs for one study (in average) : $ 53.145,
Hosting site visits (7 per year) : $ 62.720.

Yet, direct cost of benchmarking is not the main reason why benchmarking should be grounded on a precise definition of "what are the key processes".

A parallel can be made with OPT (Optimised Production Technology) : when Goldratt was proposing improvement actions in the physical system of industrial firms, he insisted a lot on the fact that focusing on non-bottlenecks machines (i.e. machines that do not limit the production flow) was a complete waste of time and money.

Undergoing a benchmarking process on some activities in the company that do not *a priori* require improvements is a similar waste. Moreover, it might end in a strategic failure, for all efforts in the company are thrown towards a wrong direction.

So, the benchmarking process should be undergone only in the areas where changes are required, in those activities that "contribute in providing competitive advantage" [14].

Nevertheless, this identification phase remains difficult, as is shown by the following litterature survey of the main techniques, tools and methods used.

2.3. State of the Art

Through our litterature survey, we have identified four sub-tasks that should appear in the identification phase :

- identify global objectives,
- split them up into sub-objectives according to the internal structure of the firm,
- locate the improvement areas,
- prepare indicators on which to ground the comparison with other companies.

2.3.1. An overall point of view

Most authors insist on the necessity for the benchmarked process to contribute to the improvement of the company's overall performance, by :

- reaching a global objective at the company level (corporate strategy objective, competitive advantage, etc.);
- providing customer's satisfaction;

- solving a global inconsistency (delays, inventories, costs, quality, etc.).

For instance, J.A. Schmidt identifies three primary forms of benchmarking: strategic, customer and cost [13]. Each of them includes this preliminary phase :

- Strategic benchmarking, by essence, takes into account the company's strategy;
- Cost benchmarking aims to solve cost problems at a company level by focusing on productivity and direct cost structures;
- Customer benchmarking begins with the determination of the attributes that influence customer value perceptions.

For customer benchmarking, J.A. Schmidt proposes a method based on customers' interviews or written surveys for determining and classifying (each year, for instance) the value attributes according to their relative importance for the customers. An importance/satisfaction matrix is used (see figure 2), on which the position and evolution of the value attributes (for the company and for its competitors) can be viewed. The same matrix can be found in [10].

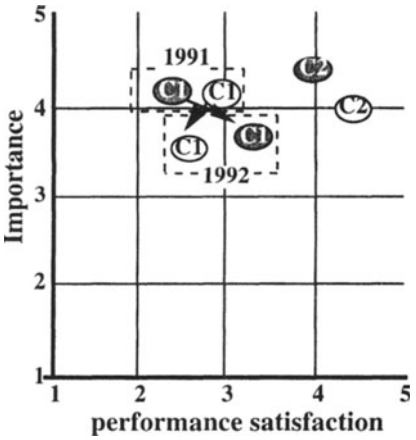

Fig. 2 : Importance/satisfaction matrix [13]

R.C. Camp , in [4] as well as in [5] also advises to initiate the benchmarking process at a global level. His experience is that the product or output of the business function should be identified either by "developing a clear mission statement detailing the reason for the organization's existence, including typical output expected by customers" or "pose a set of questions that might reveal current issues facing the function" [5].

IBM Rochester, 1991 Baldrige quality award winner, has undergone its benchmarking approach in order to reach such goals as : "be the undisputed leader in customer satisfaction, be first with the best products,[...]" and "be the best-of-breed (BOB) in C.I.M." [7]. The consistence between the former set of goals and the latter results from a strategic analysis preceding the implementation of the benchmarking process.

K. Bemowski, in [1], quotes Alcoa's way of deciding what to benchmark by answering questions related to "customer's satisfaction, consistency with Alcoa's mission, business needs, significance in terms of costs or key nonfinancial indicators".

Another question asks if "the topic is an area where additional information could influence plans and actions". This question is interesting because it situates benchmarking as a weapon to build the Strategic Information System of the company.

2.3.2. A decomposition phase

The competitive advantage or the overall inconsistency has now been identified globally, at the company level. But benchmarking solutions cannot be performed on such a large scale : they involve processes, not global functionings. The objective (resp. the problem) must then be split up into sub-objectives (resp. sub-problems) according to the internal structure of the firm.

Y.K. Shetty [14] proposes to describe the organization of the company by adapting Porter's value chain analysis [12].

This approach clearly stands for a dis-aggregation from a macro-level description (performances or problems in the whole enterprise) to a micro-level description (contribution of each function to the overall outputs).

Moreover, Shetty proposes to use Porter's value chain for the identification of the "key activities".

Another decomposition technique is given in [16] :

- Determining the company's mission is the first milestone of the method (e.g. : to be the industry leader in innovation);
- This mission is translated into more finite goals for each functional area;

(e.g. : engineering department mission : to develop new concepts effectively,
marketing department mission : to improve responsiveness to a new concept development request)

- For each functional area, Key Quality Characteristics (KQC) are determined (KQC are "those process outputs most important to the customers of that process");
- Critical Success Factors (CSF) are associated to those KQC. CSF are defined as "the contributing process elements that affect KQC";
- Finally, indicators are built to measure the level of the KQC.

Vaziri insists on the necessity of giving a clear operational definition to these indicators in order to allow further comparisons with similar functionings in other companies.

An equivalent approach is developed in [7] : a method called AHP (Analytical Hierarchy Process) supports the decomposition of the overall goal (e.g. be the BOB CIM site) into sub-goals (Quality, responsiveness, flexibility and cost). Each sub-goal is weighted according to its relative importance for the attainment of the global goal. Success factors are then identified and associated to the four sub-goals. Finally, because benchmarking needs more "granularity", each success factor is decomposed in "requirements". Success Factors as well as requirements are weighted.

2.3.3. Locating the improvement area

The previous step did not aim to determine directly the area to benchmark. Its purpose was only to provide a picture of the company's functioning with enough detail ("granularity") for launching a benchmarking project.

Yet some authors propose methods and tools which simultaneously identify key activities.

For instance :

- Porter's value chain analysis [14] provides in the same time a tool for the description of all activities and a way of identifying key issues.
- Analytical Hierarchy Process (AHP) [7], by weighting sub-goals, success factors and requirements, also locates the improvement areas (the more weighted are candidates to benchmarking actions). Figure 3 gives an example of application.

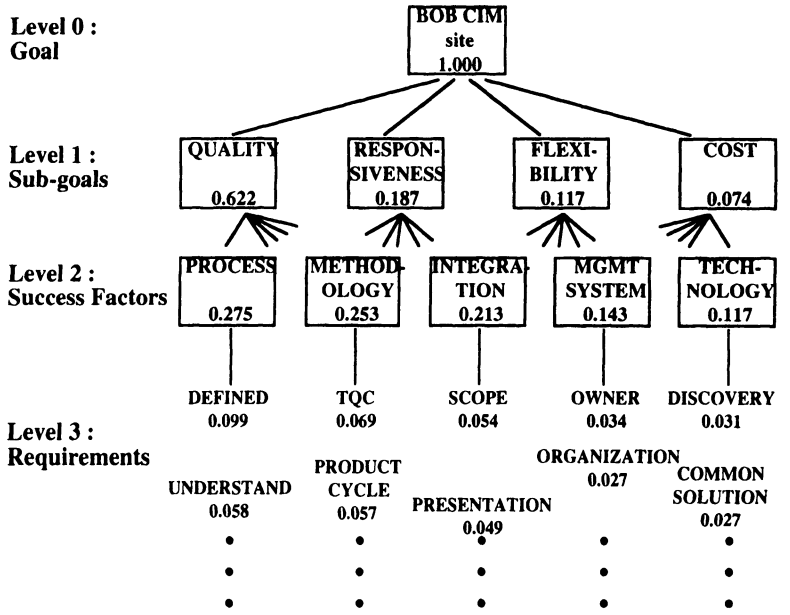

Fig. 3 : AHP hierarchy [7]

Nevertheless, generally speaking, the description of the activities of the firm and the identification of key processes are two distinct steps.

R.C. Camp [5] advises to use Ishikawa cause to effect diagrams. The causals (components) are candidates for benchmarking.

Vaziri [16] applies a Pareto analysis to select among Critical Success Factors and Key Quality Characteristics "the 20% that account for 80% of the effect".

2.3.4. Preparing the comparison

Even if the first phase of benchmarking lies in an internal process-oriented analysis, it should not be forgotten that the aim is to compare one of the company's practices against external "Best Practices". The comparison can - and should be - carefully prepared in order to ensure validity and significance of the results.

Vaziri proposes to determine an indicator for each identified KQC.

The "Best Practice" will be the one having the highest (resp. the lowest) value for this indicator [16].

IBM Rochester has developed a sophisticated "Maturity Index" (MI) for each requirement previously determined : a five-point scale gives a "baseline" for comparing IBM Rochester to other companies. The results of the comparison can easily be visualized by drawing two curves in a two-dimensional space (requirements/value on the scale) [7].

3. Proposed methodology

The litterature survey has shown that some tools exist for identifying the "key activities" or "key processes" candidates for benchmarking. As far as we could see, the use of all these tools and techniques can be given more structuration. Moreover, in some areas - the internal modelling of the firm and the determination of adapted indicators for instance - improvements can be brought.

We hereafter present a tentative methodology that integrates most issues discussed above.

3.1. First step : determining the Order Winning Criteria (OWC)

As Kenichi Ohmae says : "Of course, it is important to take the competition into account, but in making strategy that should not come first. It cannot come first. First comes painstaking attention to the needs of the customers."([11] quoted in [10]).

As a matter of fact, corporate strategy as well as benchmarking should be grounded on the Order Winning Criteria (OWC), that is to say on those elements that bring customer's satisfaction and allow to win orders and gain market share.

The objective of this step is to determine what are the OWC for a specific business.

We propose to pose a set of questions to the customers about *the outputs from our company (products and services characteristics)*. The aim is to get an evaluation of how customers rate these outputs in term of importance as well as in term of degree of satisfaction.

Positioning all the outputs on the matrix shown in figure 4 will allow to determine the OWC, that is to say those outputs considered as important by the customers, but for which the customer's degree of satisfaction is low.

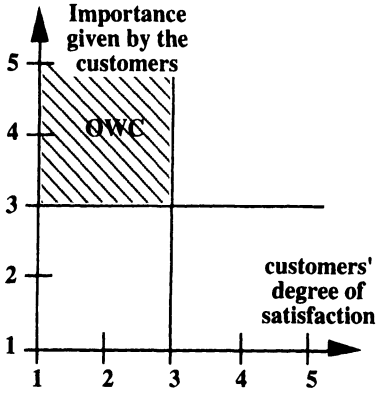

Fig. 4 : Determining the Order Winning Criteria

It is also possible to pose internally the same set of questions to the company's managers, in order to check if there is any gap between the customers' needs and the perception of these needs in the company. This additionnal action is by no means compulsary but many lessons can often been drawn from it.

3.2. Second step : modelling the internal production process

Undergoing the benchmarking project towards the attainment of OWC ensures coherence with the company's overall objectives. Yet, identifying the OWC is not sufficient, for benchmarking cannot be initiated at such a macro-level. So, modelling the processes in the company is the following necessary step.

One could argue that modelling only the part of the company that is relevant for the attainment of the OWC is enough. This is not true for a very simple reason : the company is a system, all elements interact permanently, and it is impossible to identify a priori "the part of the company that is relevant for the attainment of the OWC" : the visible symptom is not the cause.

For the last decade, the GRAI/LAP laboratory has developed several methods for modelling production systems. The GRAI method [6] aims to model the production system along its decisional dimension. The method comprises a structured démarche, a reference model and two modelling tools : the GRAI grid and the GRAI nets. Figure 5 shows a GRAI grid.

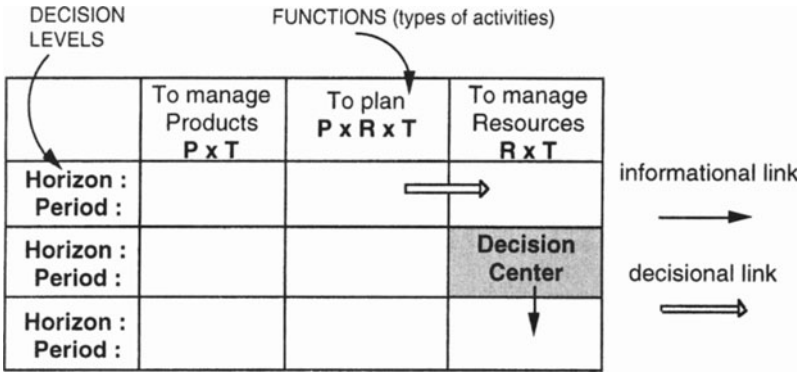

Fig. 5 : the GRAI grid

The GRAI method has been integrated into a more global methodology, GIM (GRAI Integrated Methodology) which allows to depict completely a production system by describing three sub-systems in it :

- the decisional system, thanks to the GRAI tools;
- the physical system, thanks to the IDEF 0 formalism;
- the informational system, thanks to the entity-relationship formalism.

Coherence between the three types of models is ensured through validation phases.

We propose to use GIM to model the whole company in order to visualize how the global OWC are decomposed and take place in elementary activities.

Despite of its relative "heaviness", this modelling step provides some company models :

- that can be helpful in the "integration" phase of the benchmarking process (fig.1), thanks to their explanatory capabilities, to communicate internally the benchmarking results ;
- that can be reused as such for further benchmarking applications in other activities.

Moreover, the building process of these models induces by itself implication and participation of all actors within the company. Initiating the benchmarking démarche on such bases can ensure a better understanding of the whole improvement project.

3.3. Third step : extracting and structuring objectives and key drivers per activity from the models

From the GIM models, we can extract directly the list of objectives and key drivers for all activities. From the first step, we also have at our disposal the list of Order Winning Criteria.

Consequently, the objective of this third step consists in linking sub-objectives (with the associated key drivers) to the global OWC by cause-effect relations.

The most adapted tool here seems to be Ishikawa cause-effect diagram :

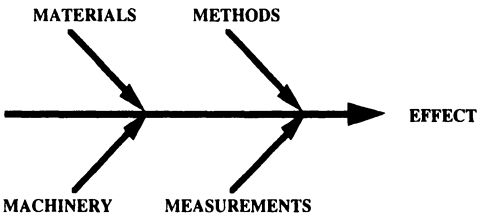

Fig. 6 : Ishikawa cause-effect diagram [9]

Applied to our field of interest, Ishikawa diagrams can allow to identify the main areas - and the main drivers - contributing to the attainment of the OWC :

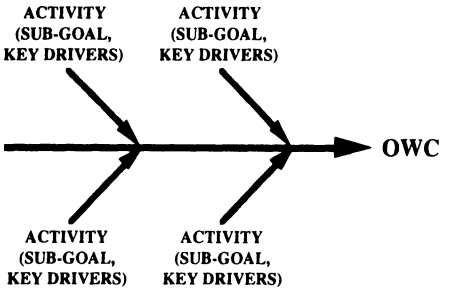

Fig. 7 : Use of Ishikawa diagrams to identify key activities

3.4. Fourth step : identification of the indicators

As stressed by Vaziri in [16], a set of indicators should be built up in order to ensure validity and significance of the comparisons with "Best Practices", by providing common measurements. Camp also insists a lot on the importance of "only comparing comparable things" [4].

The ECOGRAI method, developed by the GRAI/LAP laboratory [3] allows to build a coherent system of performance indicators for industrial systems, based on the decisional structure identified in the GRAI grid. The basic steps are :

S1- to build the performance indicators (P.I.) system by decomposing overall objectives into sub-objectives;

S2- to define, for each sub-objective, the associated key drivers (elements, resources having impact on the attainment of the sub-objective);

S3- to build the performance indicators, by considering them as a part of a triplet compound of (sub-objective, key driver(s), performance indicator(s));

S4- to integrate the performance indicators system into the informational system of the company.

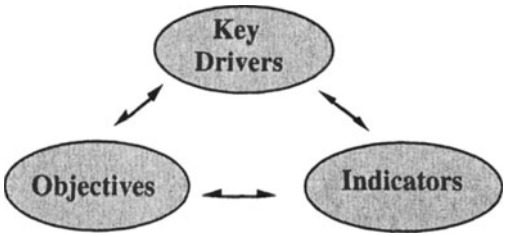

Fig. 8 : ECOGRAI triplets

The ECOGRAI method :

- ensures that Performance Indicators effectively measure the contribution of each function to the company's objectives;
- ensures coherence in the (sub-objective, key driver(s), performance indicator(s)) triplets. Most methods define directly indicators from the objective, without taking into account the drivers. This can lead to build non-operational indicators, because when measurements are performed and provide bad performance values, managers do not know what drivers should be modified for correction.

We propose to adapt the ECOGRAI method for the benchmarking process.

Steps S1 and S2 of the method are already performed : the OWC have been split up into sub-objectives, and the key drivers have been listed. The only missing element in the triplet is the Performance Indicator. Only by applying the S3 step, we can build a set of indicators on which further comparisons with "Best Practices" will be grounded.

Moreover, the designed PI system can also be used for the internal control of the company.

4. Conclusion

According to a study quoted in [8], the number of benchmarking applications will increase significantly in the ten next years. Undoubtlessly, new dedicted tools and techniques will be developed, and existing tools will be improved. For the time being, the methodology we propose for the identification of "what to benchmark" ensures that :

- the benchmarking process is undergone with respect to the customers' expectations and consequently, with the strategic objectives of the company;
- the internal activities on which the benchmarking process is undergone are the key ones in terms of impact upon the OWC obtainment.
- the designed performance indicators are coherent with both objectives and key drivers, and they allow a valid comparison with "Best Practices".

The "critical success factor", for this methodology as well as for the whole benchmarking process is *to create a dynamic of change and improvement* : the end of a benchmarking action does not mean the end of the change process. Continuity in the improvement actions is required. For instance, the GIM models and the performance indicators system designed should be permanently updated as soon as strategic objectives are modified or structural evolutions occur in the production system. By this way, managers can get an exact picture of their company whenever they need it.

Mentalities are evolving from the idea of day-to-day management to the idea of management of change, and benchmarking is a powerful technique to support such a challenge.

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