

Identifying and Ranking the Challenges in the Implementation of Bench Marking in the Special Petrochemical Economic Energy Zone of Pars

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Abstract: Improve efficiency in organizations is the result and function of effectiveness management which is synonymous with scientific management and change and is necessary to increase productivity to management be established. This concept motivates, mobilize and create change. We should planned the scale and pace of change in all elements of the organization that includes people and human resource structure, attitudes and values, skills and training, technology and equipment, production and marketing. Bench marking process needs comparison of its working and practices with the best available practices which leads to identify ways to improve the organization. The standards and new ways for organizations to better satisfy the needs of customers specified that will be in terms of quality, cost, service and variety of products. These changes create positive attitudes and organizational culture that would be appropriate to improve the efficiency and technological change. With this approach, organizations can apply for renewal of their business system processes. The need to provide new and innovative solutions to resolve issues and increase public awareness of employees of the company's performance against competitors contribute to the development of macro and long-term strategies, create homogeneous and disciplined development process between the pillars of the organization and increase job satisfaction with their participation in the competitive circuit objective, companies are more and more subject to renewal. In this context, the challenges facing companies is occurring which the most notably in the research and petrochemical companies in Pars Special Economic Energy Zone were studied. According to library and field research and the industry elite, the most important factors identified and by putting into question the factors in the population, the importance and ranking the factors have been identified. Then, by examining and using confirmatory factor analysis, the questionnaire was evaluated; the results suggest that the measurement model is a good fit factor.

Key words: Bench marking, Pars Special Economic Energy Zone, confirmatory factor analysis, TOPSIS Delphi, Iran

INTRODUCTION

Jules Arthur Barker writes in the book of explore the future of art: in the 21st century the golden key to success in today's social scene is three factors: the anticipation and foresight, creativity and innovation, the pursuit of quality excellence. To achieve success and excellence, individuals, families, communities, businesses, people and governments are forced First and foremost by looking ahead anticipate future conditions, take advantage of opportunities with creativity and innovation and avoid threats, so that they can achieve qualitative excellence to achieve the goals and programs of their choice.

Bench marking process requires comparing the best practices in their business activities and practices that lead to identify ways to improve the organization. The

new standards and procedures for the organization which is also to develop new ways to satisfy customers' needs for business in terms of quality, cost, service and variety of products. With this approach, organizations can apply for renewal of their business system processes.

Bench marking in fact is the exchange of information and experiences through remote communication tools like the Internet, video conferencing, databases, fax and telephone. However, due to the conservative culture in Iranian organizations and companies, yet they have failed to appropriately and properly utilize this tool. On the other hand, the lack of intellectual property rights in Iran, in addition companies and foreign authoritative organizations in the field have not good cooperation with Iranian organizations and companies.

Currently many organizations in Europe and South America are coping with bench marking and use it as a

strategic tool (Sirat, 1994). However, research shows that despite Iran's Bench marking are well known and are required for all the managers, but only a few have been applied to research firm systematically bench marking.

Bench marking is one of the obstacles to refuse giving information to competitors. Usually "Leading organizations prevent from sharing their information. Egotism and pride can also prevent the goals and applying bench marking.

One of the key steps in the process of bench marking, is identification of partners the benchmark. Since, no specific organization in charge of our country's ranking in various spheres exist, it would grip identifying the best practices in various fields. The only way to identify best practices in Iran is the information that the organizations or companies in places such as exhibitions, seminars and press conferences, websites and other media offer. The problem with this is that sometimes there is information that these organizations offer highly exaggerated and non-conforming with reality. This reduces reliance on this information. Perhaps consider prestigious national and international awards and trophies will only be as good and standardization criteria for choosing the best model.

Information can be shared in various ways including correspondence or visit in person acquired the ability to get there at least 80% of information through correspondence. But more Iranian companies don't provide information through correspondence and not even met and are more interested in exchanging information through the negotiation. The problem that this creates is that collecting information on relevant topics is not desirable the limited time allotted for discussion, not used efficiently most of that spent for the information that can be obtained through correspondence. Another problem is that most Iranian companies, from which they will be asked to visit, not willing to share information on their company premises. They offered to negotiate in person at the request of their benchmark.

It is natural; getting the information from benchmarking competitors is more difficult than get information from other companies. Unfortunately, many companies in Iran have certain limitation in exchanging information and experiences to its competitors. Of course, this is bilateral. This means that the benchmark companies also have restrictions on the exchange of information with its rival.

With regard to the issues raised in the investigations, it seems that such things have been seen in our studied companies and in the implementation process bench

marketing. It caused the implementation of this beneficial strategy facing the problems or in general to be forgotten, that in this study we address it.

Overview of research

The importance of the need for research: According to articulate the importance of bench marking cannot be overlooked as a tool for continuous improvement. Since the produce is as one of the economic requirements, the improvement of quality management techniques have been proposed as an indispensable tool to gain competitive advantages. Although, research has been done to fix the problems but because of the incomplete, the high cost of implementation or non-compliance, some remained unfinished or were not properly implemented. (Anderson and McAdam, 2004; McAdam *et al.*, 2008).

In a competitive situation, quality and efficiency are two important factors in the survival of enterprises and manufacturers and excellence of the organization. Continuous improvement tool is sure to continue to participate in this market. One of the ways in which progress will be competitive organizations, is modeled on the best or the bench marking (Anand and Kodali, 2008).

In addition to the privatization issue, another issue that must be pointed out, is that the turbulent and rapidly changing business environment, managers and researchers trying dropped to invent new ways to help organizations in anticipation of future events and possible changes, better life and more consistent compliance with environmental and. The managers and researchers are to seek in this environment to ensure the survival of organizations through capacity of learning but they have to remember, that this is not an easy task (Joe *et al.*, 2011).

Barriers to effective use of bench marking: Fear of being like some other tools that are often excluded this method works poorly. Fear of loss of comparative advantage by sharing information. Vanity and arrogance, conceit and arrogance more, easy to imagine that bench marking but may have little significance for the company's success. Impatience and haste.

Finally, bench marking can be noted that both an attitude and thinking and infrastructure are necessity. The necessity arises we summarize research from global competition in our study and increased market competition, rapid and significant advances in science and technology. The creation of specific conditions and political conditions that cause problems in terms of sanctions due to delays in obtaining the technology and reduce the use of shared resources (gas fields shared between Iran and Qatar).

The main reason for our interest in bench marking is using it as a catalyst (a catalyst) to modify and increase performance, increase customer satisfaction, improve profitability and enhance the understanding of the organization.

In this regard, this study seeks to identify and rank the challenges in the implementation of the bench marking in petrochemical Pars Special Economic Energy Zone because of the importance of this region as one of the most important industrial centers of the country that have a large share in the economy. As the companies on the list of the largest petrochemical companies and sometimes it's kind of production as the world's largest manufacturer of a particular product, increases the importance of the study. Raw materials for the company's products are generally directly or indirectly in the form of natural gas. Having common interests in gas fields with other countries like Qatar brings us to the matter that we can develop and promote these companies and grabbed a greater share of the resources, also contributed to the country's economy and which reduces the information gap and achieve access to technology through bench marking firms a significant role in improving the performance of. Its goal is to bring more efficiency and profitability and leadership in the industry, according to the capacity of the natural resources and human resources, who are employed in this sector.

Theoretical foundations

History research

Local history research: Masoumi and Zamani investigate farm programs to school in Pennsylvania to the technique's bench marking due to the importance of this scheme meals health of students in Pennsylvania schools for benchmarking and localization of its constraints, barriers to its implementation was studied. The most important issues in this field were investment by economic justification for it raising solutions to be profitable considered.

Vali explores the methods and bench marking patterns in the book publishing industry. Fear of loss of desire to read as the best way to learn and the most powerful media in connection with the audience, led the activists to think and review innovation in the book publishing industry. One way to review the product or service bench marking method to identify best practices in the publishing industry were examined as separate components of the industry. Bench marking of domestic and foreign publishers can identify and select the best of distribution of the newspaper industry by using benchmarking function method. Marketing and retail are

steps that can be interconnected using bench marking in other industries in the national and international levels checked. Bench marking can be distributed in the marking of the leading companies like Amazon for the industry with regard to sales of the book took advantage of the Internet. It can be a long process of coordination of the limitations and challenges of high-ranking officials for this process and the organizational culture of conservatism.

Foreign history study: Given the complexity of issues surrounding the concept of sustainable tourism, Kornat and Gordon provide an integrated method for assessing sustainable tourism, based on a number of quantitative indicators. He proposed method bench marking framework of sustainable tourism which makes a number of criteria to assess the sustainability of tourism activities in different countries. The heterogeneity of bench marking developing countries is an important factor to identify the main problem in every country in the tourism sector, so you cannot expect bench marking everywhere even with the same performance even lead to the same results. Perhaps if all conditions cannot be measured in an exact "bench marking implemented, the desired result is not achieved, resulting in waste of resources".

Rorisa and his colleagues study bench marking Albania's government. Concluded that countries often rank and bench marking on the basis of economic development that human and technology are doing. The challenges facing researchers in this study can name not the same comparative indexes, long process banal things, the absence of a specific organization as trustee ratings and distance learning organization categories (Rorissa *et al.*, 2011).

Theoretical definitions

Bench marking: Benchmarking is a tool for improvement. This leads among two important requirements, the first covers all aspects of the organization cannot solve all problems but it would be appropriate for sustainable organizations. Second, benchmarking is for improvement. Some look on the bench marking only as a tool to assess their own performance in relation to the others. This is just part of a bench marking. If the improvement is not considered as a central goal, this tool will be nearly useless. Bench marking types (compared to what) contains bench of Internal marking a gentle start, bench marking contest, a sensitive comparison, bench industrial marking or functional, learning from the nearest case, bench marking process, practice of creativity.

Types of bench marking (based on nothing that compares) which includes bench marking performance, bench marking process, strategic bench marking. Bench marking basic steps: planning, search and review, observation, analysis, comparative. Bench marking performance models can be used to model Deming, Malcolm Baldrige Model, Model EF' ve Qiu, Iran National Quality Award.

Pars special economic energy zone: Pars Special Economic Energy Zone according to the Council of Ministers and the Supreme Council of the Free Zones Act, 1999 (Act 39 sessions) and determination is defined as follows: a region where the West Village Sweet, from the south to the Persian Gulf, from the north to the continuation of Zagros Mountains and the East leads to the village of Chah mobarak. The scope of the Directive Council of Ministers was ten thousand hectares which is based on the standard resolution.

Petrochemical: The two words Petro (oil) and chemical composition which means oil chemistry. In other words, petrochemical argues the conversion of petroleum products to consumed products .The term first were used in 1942 by a group of manufacturers of chemicals for advertising.

Research question: What are the bench marking performance challenges in petrochemical companies in Pars Special Economic Energy Zone is?

What is the bench marking rating of challenges in executing petrochemical companies in Pars Special Economic Energy Zone?

MATERIALS AND METHODS

The nature of the aim of the present study, since the implementation of bench marking to identify and rank the challenges in the studied companies is concerned, is exploratory research and practical. The method for using mathematical modeling analysis is considered descriptive and survey. The population of the study is all 16 selected company managers and experts. The 16 companies have 5326 managers and experts with different organizational levels. The population size is 5326 people. In this study, enjoying the views of senior executives and collect information about the field method is used to answering questions includes the distribution of questionnaires to collect their opinions. The first Delphi questionnaire form factor was 42. Second Delphi method questionnaire includes 19 factors in three stages. Topsis questionnaire includes 19 factors of Delphi was the first in three stages.

RESULTS AND DISCUSSION

Analyze the data: we first identify by the Delphi method, and then identify and confirm normality by testing k-s ranking factors described above. According to the results of the third stage of the Delphi method, the most important factors in creating challenges in implementing bench marking (benchmarking) in Pars Special Economic Petrochemical Zone are as follows: low levels of knowledge sharing and information flow among the participants (partners bench marking), lack of cooperation and mutual trust among partners, fear of losing competitive advantages, the desire for change in the organization (resistance to change within the organization), lack of familiarity senior management and insufficient information about the process bench marking, refusing to give information to competitors or pride and arrogance to the need for this process, bureaucratic problems, lack of effective methodology for projects bench marking, unfavorable organizational structures (values, norms, attitudes), failure to achieve a suitable data for bench marking process, difficulty in collecting field data, problem analysis comparable data, the team Bench marking (qualification), away from concept of learning organization (closed and introverted), employee turnover (from top management to employees) at bench marking process, the size of the company and partners bench marking, long process to coordinate high-ranking officials for bench marking process, lack of senior management support for efforts Bench marking associated with the culture of conservative organizations.

Ranking of the topsis: In this study, aim is to rank 19 factors extraction method similar to Ideal or topsis. To rank the 19 factors topsis-choice questionnaire was used selectively. This questionnaire has been completed by 359 managers and experts from different organizational levels ranging from 16 companies based choice of petrochemical companies in Pars Special Economic Energy Zone, there were 17 senior managers, 28 middle managers, 42 supervisors, 31 senior technical experts, 16 senior non-technical, 178 technical experts, 47 non-technical experts among the 359 respondents to the questions. Frequency distribution table is as follows. In any enterprise-class responses to the questionnaire have been obtained (Table 1).

Similarity index: Similarity index options ideal answer is obtained as follows:

$$c_i^* = \frac{S_i^-}{S_i^+ + S_i^-}, i = 1, 2, \dots, m$$

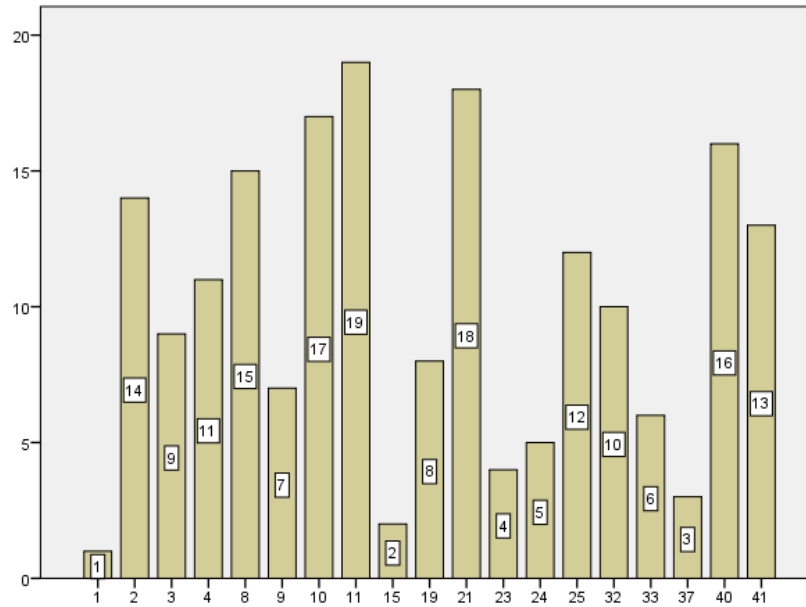


Fig. 1: The frequency rank factors in TOPSIS

Table 1: Options are the ideal and anti-ideal answer

Agent No.	Distance from ideal answer	Distance from anti ideal answer
1	0.0000331421	0.008910345
2	0.0067687610	0.002809389
3	0.0051491940	0.004010504
4	0.0053100290	0.003887039
8	0.0068928.30	0.002395830
9	0.0032337390	0.006087070
10	0.0078187490	0.001652783
11	0.0083923300	0.001244566
15	0.0005146060	0.008705458
19	0.0034568900	0.005921252
21	0.0080176800	0.001470262
23	0.0018532020	0.007455527
24	0.0022753410	0.006911347
25	0.0056064300	0.003667946
32	0.0052815940	0.004016525
33	0.0023089800	0.006878802
37	0.0005413000	0.008737810
40	0.0074420420	0.001852527
41	0.0065335040	0.002715797

Table 2: Similarity index values for options

Agent No.	Similarity index	Rank
1	0.964139	1
2	0.293312	14
3	0.437842	9
4	0.422639	11
8	0.257931	15
9	0.653062	7
10	0.174500	17
11	0.129146	19
15	0.644186	2
19	0.631389	8
21	0.154961	18
23	0.800918	4
24	0.752322	5
25	0.395493	12
32	0.431972	10
33	0.748690	6
37	0.941665	3
40	0.199313	16
41	0.293622	13

The similarity index varies are between 0 and 1. Whatever option is more similar to the ideal, similarity index value will be closer to 1. The similarity index values obtained for all the options is given in Table 2 (Fig. 1).

Low levels of knowledge sharing and information flow among the participants (partners Bench marking) were identified as the biggest challenge in implementing the bench marking. Bench marking in principle is to share the right information, to improve the companies participating in the project. If you do not achieve this important issue, in general, this process only has the human and financial costs which would require

cooperation and mutual trust between the partners. Lack of cooperation and mutual trust among partners bench marking can dramatically reduce or ineffective the effects of this improvement process. Not giving the correct information or incomplete information in a way that cannot be used or not fully covered process or not provided at the right time can lead to wrong decisions on the continuation of the process. Bureaucratic problems might face doing something small and commonplace in large organizations with a long process. In addition to this project will lengthen the time, also repeat the process if the problem is faced with a huge delay. Staff turnover,

high-level managers in coordination with organizations that are bureaucratic problems bench marking management changes during the process which leads to the track again and being in the hierarchy of administrative and paperwork result in prolonging the process and raise the risk of readmission, by the new management, can easily affect the process of marking Bench. The desire for change in an organization as important factors considered in dynamic organizations, which host companies bench marking is considered as an essential component. If there is no desire to change, the improvement will not happen. Stand in the process of marking, all levels of the organization to the highest level that is associated with this process at different stages in some way, have the desire to change because of the nature of the acceptance of the superiority and strengths of others and put on the agenda of this improvement, in the near future, undoubtedly shows the need to change more than ever. Senior management's lack of familiarity with the process, leading to wrong decisions and Overall, with the opposition in implementing the bench marking, with the idea of accepting the weaknesses in the implementation of bench marking or the exercise of personal taste and not necessary frameworks, could undermine the overall result or to haven't the expected feedback. Refusing to give information to competitors or pride, and arrogance to failure to collect the right information needed to process forms, for fear of losing competitive advantage, organizational undesirable structures (values, norms, attitudes), lack of senior management support for efforts related to the bench marking, conservative culture organizations, a long process of coordinating high-ranking officials for bench marking process, lack of effective methodology for projects bench marking, failure to achieve a suitable data for bench marking process, employee turnover (from top management to employees) at bench marking process, problem analysis of comparable data, the team bench marking (qualification), bench marking the size of the company and partners bench marking is as the most important factors in kidney impairment in the performance of their processes. If we do not do benchmarking, not comparing ourselves with others exposed, we think the way we do is the best approach. Because we've always done it this way. Bench marking provides space for change. When the distance between the current situation and the position of best practices were identified dissatisfaction with the status quo, exacerbated by the motivation to change. The results of the research findings of scholars and Negev and some of the research challenges identified Tyagrajan correspond in

Malaysia. The results are well fitting indicators suggest that the factors outlined in the study of reliability and validity are acceptable and they can be trusted.

CONCLUSION

Delphi technique because of the large number of separate was held in two rounds. In the first round comments of 18 industry elite were used. The first round 9 of 42 factors removed 33 remained. The most important factors were respectively, for fear of losing competitive advantages, the desire for change in the organization, bureaucratic problems, lack of effective methodology for projects Bench marking and relocating employees and... In the second round 24 of 33 factors remained, 9 factors were eliminated because of the consensus of experts. The most important factors were in fear of losing competitive advantage, the desire for change in the organization, bureaucratic problems, low levels of knowledge sharing and information flow among participants and a lack of cooperation and mutual trust among partners... In the third stage 24 is finally removed and only 5 of 19 unanimously elite remained under investigation. The most important factors in this accident rate have changed little over the first two rounds. Finally, in order to identify important factors: low levels of knowledge sharing and information flow among the participants, the lack of cooperation and mutual trust among partners, fear of losing competitive advantage, drive organizational change and lack of senior management and insufficient information about the process Bench marking, the first round of the Delphi technique ended. Delphi technique started with 19 factors to identify more effective in the second round with 9 elite who were more obvious than others, features. In the first stage 7 removed and the remaining 12 factors were the main causes of low levels of knowledge sharing and information flow among the participants, the lack of cooperation and mutual trust between partners, fear of losing competitive advantage, the desire to change the lack of familiarity management organization Bench marking senior and insufficient information about the process were obtained of the results. In the second round of 12 factors the 4 factors removed and 8 remained the most important factors is precisely because of the consensus of experts was consistent with the previous stage. In the third stage of the 8 factors, 2 factors removed and the remaining six factors in order of importance were: low levels of knowledge sharing and information flow among the participants, the lack of cooperation and mutual trust among partners, the desire to change the organization, lack of senior management and insufficient information

about the process bench marking and refusing to give information to competitors or arrogance for no need for this process and bureaucratic problems.

Statistical analysis of the data achieved in this technique, the experts in two rounds and three stages each with a view to reducing the standard deviation at each stage represents the opinions of the experts at the end of each period is converging. This indicates that the Delphi technique is done properly and accurately. There was a significant difference between Delphi method steps mean scores the first and second stages of the Delphi method, both, by taking a test or Kruskal-Wallis H test.

In the next stage of the first 19 extracted by Similarity to Ideal or Topsis ranking the factors were discussed. The questionnaire answered by 359 people including 17 senior managers, 28 middle managers, 42 supervisors, 31 senior technical experts, 16 senior non-technical, non-technical 178 technical experts and 47 experts. According to the decision matrix formed by the frequency response of the rating process continued. Finally, calculate the distance of the answer options ideal and anti-ideal, Euclidean distance was all the options. Finding similarity index for options that varied between zero and one, the ideal option is to be more similar, the similarity index value, it will be a closer to 1. Based on the obtained similarity index options, respectively, by mentioning number of ratings that include:

- Factor 1: low levels of knowledge sharing and information flow among the participants (partners Bench marking)
- Factor 15: lack of cooperation and mutual trust among partners
- Factor 37: bureaucratic problems
- Factor 23: the desire for change in the organization (resistance to change within the organization)
- Factor 24: lack of senior management and insufficient information about the process of bench marking
- Factor 33: refusal to give information to competitors or pride and arrogance to the need for this process
- Factor 9: difficulty in collecting the right information
- Factor 19: fear of losing competitive advantage
- Factor 3: unfavorable institutional structures (values, norms, attitudes)
- Factor 32: away from the concept of learning organization (closed and introverted)
- Factor 4: lack of top management support for efforts in bench marking
- Factor 25: conservative culture of organizations
- Factor 41: long process of coordinating high-ranking officials to process Bench marking

- Factor 2: the lack of an effective methodology for projects bench marking
- Factor 8: failure to achieve appropriate data for bench marking process
- Factor 40: employee turnover (from top management to employees) at bench marking process
- Factor 10: the difficulty in analyzing comparable data
- Factor 21: bench marking team (competency)
- Factor 11: bench marking the company's size and business partners

These results were in close coordination with the results of the implementation of the second round of Delphi the elite and confirmed the obtained results.

SUGGESTIONS

Comments from the results: It appears in Iranian companies, the bench marking approach has been noted to display and just get the prestigious national, to create a brand; it is also just for a short time which is therefore not a fundamental and effective action. Having information of a scientific theory alone is not enough to guarantee success. The very useful emphasis on practical commitment to this process and its implementation at all levels of the organization can provide solution for some Iranian companies, especially companies in our study. Participating companies in our study, all according to preliminary interviews at the beginning of the study calls for a strong system in their companies and were taken effective steps. But because of the limitations identified, the most important being in this study, the low level of knowledge sharing and information flow among the participants (partners bench marking) situated along with other factors, cannot be expected to receive that acceptable and real results from this investment. After identifying challenges, it is time to fix them. Hopefully, each system proceeds according to their general and specific conditions and taking into account the strengths and weaknesses of its action. Otherwise, our findings alone without action will not have any effect in improving research companies. Due to the lengthy process and planned this way, one must complete a written application and then solve the challenges that projection, agreed costs arising from it to similar companies succeed in this; we can work to get results, that is, increase productivity and performance.

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