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BENCHMARKING DESIGN: MULTIPLYING THE IMPACT OF TECHNICAL ASSISTANCE TO MSMEs IN DESIGN AND PRODUCT DEVELOPMENT

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This work takes as challenge-level exploratory study in the importance, scope and dimensions of the benchmarking of product design for the state advisory in design and product development for micro, small and medium producers.

The initiative falls as the zero phase of the project made for the Admission to the Research Career of Scientific and Technological Research Commission of the Province of Buenos Aires (CIC-PBA), which is under evaluation. Our approach comprises the sub-national policies and actions to support micro, small and medium industries (MSMIs).

This study allows us to glimpse how benchmarking can contribute design-in a system of institutional support for technical assistance MSMIs based and network-to new product designs multiply their effects.

Keywords (3 max): Benchmarking design; product development; MSMIs

INTRODUCTION

Benchmarking is a management technique, comprising a continuous process of measuring products, services and technologies for production of a particular organization, for comparison with a model organization (leader or exemplary). Has been widespread and used in the private sector, although in recent years, specific applications are being made in the public sector.

In the last decade, different governments of Europe and America are developing successfully integrated applications benchmarking methodologies in different thematic areas of public sector areas, businesses, utilities, universities, science parks, and so on. From its use in most developed countries, has become a basic component of the regulatory processes and provision of public services.

The results obtained from application of benchmarking in the public sector, have shown a development of better services and more efficient organizations with environments.

Therefore, we assume this work, which aims to make this particular perspective of the art of benchmarking and exploratory study-at-the importance, scope and possible dimensions of benchmarking design, for technical advice to state in MSMIs Province of Buenos Aires.

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METODOLOGY

This exploratory study is based on the presentation of the ways existing theoretical concepts of benchmarking, we consider the benefits and features of your application, we analyze the particularities of the public sector and in a logical and synthetic route, it evaluates its application in the Province of Buenos Aires, describing a proposed operation in the structure of the CIC.

The proposed actions are divided into two main parts: 1. the technical assistance in design and product development, and 2. The Bank of Successful Projects in Industrial Design and Design Benchmarking Network.

After the definition of benchmarking design, the main conclusions are drawn.

DEVELOPMENT

BENCHMARKING: THEORY AND APPROACHES OF THE AUTHORS

Originally the term –Benchmark- comes from the topography means a surveyors mark made on a rock or a concrete post, to compare levels. Benchmarking is a term that was originally used by surveyors to compare elevations. Today, however, benchmarking is a more restricted to the management lexicon, with the benchmark of best practice (Kouzman et al., 1999).

Benchmarking appears in the U.S. in the late seventies, from Xerox to the need to understand and overcome their competitive disadvantages. Subsequently, other companies were highlighted with benchmarking: Ford, Alcoa, Millken, AT & T, IBM, Johnson & Johnson, Kodak, Motorola and Texas Instruments, thus becoming almost mandatory for every organization wishing to improve their products, services, processes and results.

The term benchmarking is attributed to the release of Camp where the application comes from Xerox, as a technique of self and search for best practices in order to improve the quality of their processes (Camp, 1991). This publication coincided with the distinction of National Quality Award Xerox Malcolm Baldrige, who got his quality leadership from benchmarking techniques. The award, included in its assessment, the implementation of updated and the development of benchmarks, one of the early stages of what is now considered benchmarking (Czuchry et al., 1995).

Commonly in the business sector, is known to benchmarking as a technique to meet competition and changes in processes, products or services to be more competitive, from the experiences of the leaders surveyed. Different authors define benchmarking as a process of benchmarking, continuous and systematic inter-organizational processes, products and services to implement improvements (Spendolini, 1994).

Benchmarking is an independent management strategy that integrates a set of techniques evolucionadamente quality. Therefore, it is also a technique of management innovation (Clemente & Balmaseda, 2010).

Bruder & Gray, defined as: "a rigorous and practical to measure the performance of your organization and processes, in contrast to the best organizations of its kind, both public and private, and then use this analysis to improve services, operations and situation costs dramatically." (Bruder & Gray, 1994:9).

Fischer (1994:3) defines benchmarking in terms of performance measurement: "Through a series of performance measures-patterns known as 'benchmarks' [benchmark] - a person can identify the best in class between those who perform a task in particular. Then, best practices are analyzed and adapted for use by others who want to improve their way of doing things.".

For Pfeiffer (2002), benchmarking is not a simple comparison of indicators of an organization with another organization or with other ideals, especially not, when performed only once. It is important to compare the values derived from processes throughout the organization, continually comparing and always seek better solutions, the goal is –the learning organization-.

APPLICATION BENEFITS

The organizations are using benchmarking for different purposes. Some lie to benchmarking as part of an overall process that seeks to improve the organization. Others view it as an ongoing mechanism to keep updated (Spendolini, 1997).

This technique is very efficient for improvement in organizations, and that can be incorporated and adapted processes whose effectiveness has been proven by other organizations. For this reason, it helps organizations to make improvements quickly.

Furthermore, benchmarking is a relatively low technology, low cost and fast response, that any organization can adopt. It also seems to have enough common sense to make it easy to understand for both officers, directors, employees, suppliers, customers, and for the media and general public (Cohen & Eimicke, 1995; Cohen et al., 2008).

Typically, an organization in an attempt to identify the best in its class and duplicate or exceed their performance, you can also integrate their culture and behavior, a strong competitive spirit, pride, confidence, energy and effort improvement (Cohen & Eimicke, 1996).

Innovation is one of the direct benefits obtained from benchmarking practices and has direct impact on the ways of doing, from the incorporation of new ideas about a problem, ideas or specific applications.

BENCHMARKING IN THE PUBLIC SECTOR

According to Marchitto (2001), who has researched, developed and implemented in Italy on benchmarking in the public sector, argues that to the public, this technique may offer the right to appropriate the role of producer welfare for the community, restoring efficiency and efficacy.

In the public sector, benchmarking can be defined as the continuous and systematic process by which government-from a thorough in-depth analysis phase, individualized areas for improvement and carry out internal and external comparisons, in order to: integrate shares common objectives, consistent with the overall objectives of the State; get the cooperation between the network, in order to provide increased value to recipients, and planning to make improvements (Marchitto, 2002).

TYPES OF BENCHMARKING

For Camp (1991), there are four types of benchmarking: internal, competitive, functional and generic. Instead, Spendolini (1994) categorizes three types of benchmarking: internal, competitive and generic (functional), grouped in one category to the generic and functional benchmarking.

The internal benchmarking focuses on the comparison of internal actions to identify the best processes of the organization. The competition identifies and collects information about processes, products and services in direct competition, for comparison with our own. The generic, identifies and collects data in the same way that competitive, but other organizations that may or may not competitors.

From another perspective, can cross at these types of benchmarking (internal, competitive and functional) with other characteristics, determining the strategic, if you look at

objectives, goals and organizational vision, or operational, if the research focuses on the tasks more specific and operational.

Additionally, Marchitto (2001) proposes a classification especially adapted for the civil service and is based primarily on the differentiation process: operational and strategic management.

APPLICATIONS OF BENCHMARKING IN THE PROVINCE OF BUENOS AIRES

In previous work, we surveyed and analyzed various applications benchmarking tool in the public sector through international organizations, national, subnational and local (Del Giorgio Solfa, 2011).

In the provincial public sphere, different organizations currently applying the technique of benchmarking for improvement and institutional development. In this sense, the policy applications as benchmarking, joint actions can be cross-regional and sector (Plaza Tesías et al., 2005).

In turn, these actions can be grouped into two basic types of dimensions: 1. Government support (internally); 2. Support for private organizations (external environment).

In the Province of Buenos Aires, the possible use of benchmarking at the State level includes all the Provincial Public Administration (central, decentralized and self-sufficient). According to its purpose, can incorporate benchmarking, both for the development of their own organizations and for support of other public, private or mixed, that may be subject to its regulations, controls or policies.

Under this approach, the Ministry of Production, Science and Technology could build and manage networks aimed at benchmarking and productive economic development of regions and / or production organizations (e.g. MSMIs).

Specifically, the implementation of provincial regionalization policies, benchmarking with the control board, constitute the most appropriate set of tools for monitoring the management and development indicators, as a way of assessing the impact that various policies in each region.

To facilitate these actions, from the perspective of the whole production policies-the Ministry of Production, Science and Technology benchmarking could implement policies, supporting MSMIs from:

- Development of a bibliography and methodology of benchmarking.
- Establishment of networks of provincial benchmarking (in materials production).
- Survey and systematization of technical assistance to industries.

From these actions, and particularly from the permanent disposal networks, methodologies and results achieved with the technical assistance, micro and small industries could learn, evaluate and implement best management practices in their industry (both organizational as product) systematically incorporating benchmarking between its processes.

BENCHMARKING DESIGN IN THE ORGANIZATIONAL STRUCTURE OF THE CIC

In Currently, CIC is the organization of the Ministry of Production, Science and Technology, Buenos Aires, which is responsible for promoting research and providing technical assistance through its various research centers.

Among its twenty-six centers, rescue Industrial Design Center (IDC) -created by agreement with the National University of Lanus- which acts on the translation that makes the CIC, on policies issued by ministerial portfolio.

The CDI investigation, is assisting and advising the seat MSMEs with Buenos Aires, but by its strategic geographical location and involves mainly the territorial patches of the following industrial sectors (OPPA, 2001):

- Clothing.
- Leather, footwear and leather goods.
- Furniture and parts.

Understanding that the CDI is the most immediate operational core of public policy, in research and industrial-design assistance that is targeted to the industries of strategic dimension, is that we consider as most suitable to incorporate and develop benchmarking activities.

TECHNICAL ASSISTANCE IN DESIGN AND PRODUCT DEVELOPMENT

The technical assistance MSMEs, form, in terms of industrial design, require significant resources and professional endeavors.

On the other hand, considering that these public policies, in the form of technical assistance, can not respond in a timely manner, increasing and varied demands of design and development of new products, we feel obliged to propose creative solutions to reach the as many productive organizations.

Also, from the standpoint of public administration responsible, we owe a commitment to use resources on a basis that allows us to capitalize on the present and future, the different experiences that are acquired in the processes of technical assistance in industrial design.

It is then, under this approach, the technical assistance and take a more important dimension, with the multiplier effect of digital media.

In this logic, also fits the idea that government should not assist technically in "black box" and get involved in the generation of competitive differences between companies.

Therefore, these proposed technical assistance, will endure, transparent and easy arrival to producers, is expected to collaborate with more uniform sectoral developments.

THE BANK OF SUCCESSFUL PROJECTS INDUSTRIAL DESIGN AND DESIGN BENCHMARKING NETWORK

Within the Commission, proposed the creation of the Bank of Industrial Design Successful Projects (BPE-DI) and Benchmarking Network Design.

The BPE-DI, with a smart search system, will capitalize on CDI's technical assistance in benchmarking actions undertaken.

The idea of forming a Benchmarking Network Design, which integrates the various MSMEs interested aims: to support and produce synergies cross (within and between sectors) work together (networking), facilitate the search for benchmarking partners, and assist in improving indicators of design management and new product development (Del Giorgio Solfa, 2001).

The BPE-DI and Benchmarking Network, would form a solid core to share successful experiences and find-in-industrial design at the provincial level.

DESIGN DIMENSIONS OF BENCHMARKING

The application of benchmarking of product design or simply benchmarking design, requiring different dimensions and indicators set design, which allows them to be measured and compared with other products.

Although these findings may somewhat complex and include more dimensions, we show in Table 1, we define groups in an exploratory way:

Table 1 Some dimensions of Benchmarking Design

A. Market
A.1. Price A.2. Target A.3. Date of entry into the market A.4. Average life A.5. Positioning A.6. Sales volumes
B. Technology
B.1. Number of parts B.2. Material / s. B.3. Quantity of each material B.4. Production processes B.5. Production scale B.6. Standardized parts
B. Dimensions
B.1. General: height, length and width B.2. Parties: height, length and width B.3. Anthropometric dimensions B.4. Variable dimensions
C. Use
C.1. Physical ergonomics C.2. Psychological ergonomics C.3. Guarded
D. Maintenance
D.1. Cleaning D.2. Repair D.3. Spare parts
E. Recycling
E.1. Reuse rate E.2. Environmental impact

Source: own.

CONCLUSIONS

In the first instance, review of benchmarking literature and the cases studied, we can conclude that it is a technique that can be perfectly applied to the CDI.

We emphasize, in the words of Camp: "The rationale for benchmarking is that it makes no sense to be locked in a lab trying to invent a new process to improve the product or service, when this process already exists." (cited in MAC, 2008:11).

On the other hand, we know that typically MiPyMIs must continually improve their products, focusing on the needs of citizens and the new challenges they face as a result.

It is in this instance, where the self-assessment, assists the CDI, the BPE-DI, Benchmarking Network Design and the subsequent comparison of productive organizations can play an important role. Benchmarking is presented as an opportunity to capitalize on the knowledge and developments that have reached other organizations throughout its existence. Perhaps its greatest benefit, is based on the discovery of new and better ways of doing things.

Course, you have to initiate a process of benchmarking involves making efforts by the organization in terms of: resource allocation, teamwork, sharing and finding information, and so on.

Therefore, the CDI, has a key role in implementing benchmarking pilot at the provincial level design.

With the ultimate aim of improving the capabilities of MiPyMIs and increase the quality of their products, we propose to revalue to make proposals for benchmarking and continuous implementation.

In short, we believe it is worth devoting resources to a benchmarking policy design in the Province of Buenos Aires. Because not only does not perceive problems, if we visualize important insights with your application.

REFERENCES

- Bruder, K. A. & Gray, E. M. (1994). Public Sector Benchmarking: A Practical Approach. *Public Management (PM)*, No. 76 (9), p. 9.
- Camp, R. C. (1991). *Benchmarking. Come analizzare le prassi delle aziende migliori per diventare i primi*. Itaca, Milano.
- Clemente, G. Z. I. X. & Balmaseda, E. V. (2010). El Benchmarking Aplicado a la Gestión de la Innovación. *Revista de Dirección y Administración de Empresas*, Número 17, pp. 33-46.
- Cohen, S. & Eimicke, W. (1995). *The New Effective Public Manager*. Jossey-Bass Publishers, San Francisco.
- Cohen, S. & Eimicke, W. (1996). Understanding and Applying Innovation Strategies in the Public Sector. *57th Annual National Conference of the American Society for Public Administration*, June 29-July 3, Atlanta.
- Cohen, S. et al. (2008). *The Effective Public Manager: Achieving Success in a Changing Government*. 4th Edition, John Wiley & Sons, San Francisco.
- Czuchry, A. J. et al. (1995). A review of benchmarking literature – a proposed model for implementation. *International Journal of Materials and Product Technology*, Vol. 10, No. 1-2, pp. 27-45.
- Del Giorgio Solfa, F. (2001). *Importanza dell'Industrial Design nell'Ambito dell'Unione Europea*. Master in Diritto, Economia e Politica dell'Unione Europea. Facoltà di Scienze Politiche, UNIPD, Padova.
- Del Giorgio Solfa, F. (2011). *El Benchmarking en el Sector Público: Aportes y propuestas de implementación para la Provincia de Buenos Aires*. TFI Especialización en Gestión Pública. PBA-UNTREF, La Plata.
- Fischer, R. J. (1994). An Overview of Performance Measurement. *Public Management (PM)*, No. 76 (9), p.3.
- Kouzmin, A. et al. (1999). Benchmarking and performance measurement in public sectors: Towards learning for agency effectiveness. *International Journal of Public Sector Management*, Vol. 12, No. 2, pp. 121-144.
- Marchitto, F. (2001). *Il Benchmarking nella pubblica amministrazione*. Sistema Previdenza, Istituto Nazionale della Previdenza Sociale, Año XVIII, No. 202/203, Roma.
- Marchitto, F. (2002). *Benchmarking nella Pubblica Amministrazione. Una metodologia per il miglioramento continuo*. Franco Angeli, Milano.
- Ministerio de Agricultura de Chile (MAC). (2008). *Manual de Benchmarking*. Gerencia de Clase Mundial del Instituto de Desarrollo Agropecuario p.11.
- Observatorio Permanente de las Pymis Argentinas (OPPA). (2001). *Evolución Territorial-Sectorial de las PyMIs 1994-2000*. IDI, UIA. UNIBO, Buenos Aires.
- Pfeiffer, R. (2002). *The IBFA/IBSA Scheme for International Company Benchmarking*. Steinbeis-Europa-Zentrum, June 7.
- Plaza Tesías, A. et al. (2005). Consenso sobre un proceso de benchmarking en la atención primaria de salud de Barcelona. *Atención Primaria*, Volumen 35, Issue 3, Febrero de 2005, Barcelona, pp. 130-139.
- Spendolini, M. J. (1994). *The Benchmarking Book*. Amacom, New York.
- Spendolini, M. J. (1997). *Fare Benchmarking*. Il Sole 24 Ore, Milano.