**Tools for formulating a strategic change**

PESTLE Analysis

The analysis was given the name PESTLE in reference to the acronym formed by the initials of the six categories of macroeconomic variables included in the model (**P**olitical, **E**conomic, **S**ocio-cultural, **T**echnological, **L**egal and **E**nvironmental). Firstly, the model allows managers to identify the macroeconomic variables to take into consideration for the development of the business (opportunities vs. potential risks) for which realization remains relatively uncertain. Then, the model can initiate the conceptualization of different scenarios based on these uncertain variables to better predict the future and make the right decisions today in the interest of the future (50MINUTES.COM, 2015).

Although the present form of PESTEL analysis provides important foundational knowledge in, conceptual terms, for analysis of the macro environment, it has some limitations in terms of measurement and evaluation (Yüksel, 2012).

There are certain questions that one needs to ask while conducting this analysis, which give them an idea of what things to keep in mind. They are:

o What is the political situation of the country and how can it affect the industry?

o What are the prevalent economic factors?

o How much importance does culture has in the market and what are its determinants?

o What technological innovations are likely to pop up and affect the market structure?

o Are there any current legislations that regulate the industry or can there be any change in the legislations for the industry?

o What are the environmental concerns for the industry (pestleanalysis.com)?

It is very critical for one to understand the complete depth of each of the letters of the PESTLE. It is as below:

**P**olitical: These factors determine the extent to which a government may influence the economy or a certain industry. A government may impose a new tax or duty due to which entire revenue generating structures of organizations might change (pestleanalysis.com).

- Relations with European Union - Democratization process

- Regional relations - Political stability (Yüksel, 2012)

**E**conomic: These factors are determinants of an economy’s performance that directly impacts a company and have resonating long term effects. A rise in the inflation rate of any economy would affect the way companies’ price their products and services. Adding to that, it would affect the purchasing power of a consumer and change demand/supply models for that economy (pestleanalysis.com).

- National income - Current deficit

- Investment incentives - Energy cost

- Monetary policy - Foreign debt

- Fiscal policy - Unemployment (Yüksel, 2012)

- Foreign investment

**S**ocio-cultural: These factors scrutinize the social environment of the market, and gauge determinants like cultural trends, demographics, population analytics etc (pestleanalysis.com).

- Life style - Obey the rules

- Level of education - Democracy culture

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- Awareness of citizenship (Yüksel, 2012)

**T**echnological: These factors pertain to innovations in technology that may affect the operations of the industry and the market favourably or unfavourably (pestleanalysis.com).

- Technologic investment policies of government

- New patents

- Support the research and development activities by government

- Adaptation to new technologies

- Rate of change in technology (Yüksel, 2012)

**L**egal: These factors have both external and internal sides. There are certain laws that affect the business environment in a certain country while there are certain policies that companies maintain for themselves. Legal analysis takes into account both of these angles and then charts out the strategies in light of these legislations (pestleanalysis.com).

- Competition laws - Implementation of laws

- Judicial system - International treaties (Yüksel, 2012)

- Consumer rights

**E**nvironmental: These factors include all those that influence or are determined by the surrounding environment. This aspect of the PESTLE is crucial for certain industries particularly for example tourism, farming, agriculture etc (pestleanalysis.com).

- Transportation infrastructure - Urbanization level

- Traffic safety - Green issues (Yüksel, 2012)

- Public health

When using the pestle technique it is important to recognise that we are looking for factors that fit two criteria: they are outside the sphere of influence of the organisation, and they will have some level of impact upon it (Cadle, Paul, Turner, 2010).

Although the technique is usually seen as one where the external environment is considered, PESTLE may also be used to analyse influences operating within an organisation. This situation arises where issues or ideas concerning a particular function or department are under examination. An analysis of the external factors that may impact upon that department can help in a number of ways, from clarifying reasons for change to identifying options (Cadle, Paul, Turner, 2010).

For example, if a PESTLE analysis is carried out with regard to the human resources department there may be factors within the wider organisation that fit our two criteria - they are outside the department's control and are likely to impact upon its work. Perhaps there have been poor company results and the finance department has recommended to senior management that recruitment and training should cease for a six - month period. This decision will affect the work, but will be outside the control, of the HR department so it is an external factor to the department but an internal factor to the business as a whole (Cadle, Paul, Turner, 2010).

Of the major limitations of the model is that the outcome may become outdated in less time following the dynamic changes especially if the organization is in a technology-based industry. Moreover, the process of the market survey is time-consuming and can be costly to the company. Further, even though the model tries to highlight the key aspects, further drill in is essential for a more comprehensive evaluation of the factors in concern using other models such as fishbone diagrams, regression and trend analysis etc. The outcome of the model can be distorted following the false inputs of the research findings which should be also considered. For example, the research may not use the best possible sample where the 3

findings may not give the real picture. Thus, it is clear that limitations and weaknesses are also inherent to the model that is to be considered by the business (Perera, 2017).

Fishbone Diagram

The Fishbone diagram (also called the Ishikawa diagram) is a tool for identifying the root causes of quality problems. It was named after Kaoru Ishikawa, a Japanese quality control statistician, the man who pioneered the use of this chart in the 1960's. It is an analysis tool that provides a systematic way of looking at effects and the causes that create or contribute to those effects. Because of the function of the Fishbone diagram, it may be referred to as a cause-and-effect diagram (Ilie, Ciocoiu, 2010).

The design of the diagram looks much like the skeleton of a fish. The representation can be simple, through bevel line segments which lean on an horizontal axis, suggesting the distribution of the multiple causes and sub-causes which produce them, but it can also be completed with qualitative and quantitative appreciations with names and coding of the risks which characterizes the causes and sub-causes, with elements which show their succession, but also with other different ways for risk treatment. The diagram can also be used to determine the risks of the causes and sub-causes of the effect, but also of its global risk (Ilie, Ciocoiu, 2010).

**Figure 1: Fishbone diagram for „loosing specialist“** (Ilie, Ciocoiu, 2010)

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For example, Figure 1 shows the problem of “loosing specialists”.

Following is the step to create a fishbone diagrams:

Step 1: Define the problem statement in a box on the right-hand side of the diagram and create the fish backbone by drawing a line to the problem.

Step 2: Identify potential causes for the problem by function or by process sequence and categorize them as the "bones" of the fish. Use brainstorming to identify causes.

Step 3: Continue to brainstorm and identify sub categories for each bone with more details. Three levels of detail are usually enough.

Step 4: Analyze potential causes, and then circle the one that most likely contributing to the problem.

Step 5: Identified root cause (Zhu, 2011).

Analysis of the diagram begins with visually scanning the diagram. Stakeholders should review the information and ideas generated when there is consensus that enough information and detail have been created for thorough consideration. During analysis, stakeholders will need to identify which factors appear in more than one category. Those repetitions indicate the potential for being a probable cause of the problem identified. The fishbone diagram can be visually simple or complex depending on the amount of detail created by the group. The fishbone diagram may need to be broken into separate diagrams if it becomes too complex (Coghlan, Bryndon-Miller, 2014).

The fishbone or Ishikawa diagram is appropriate for action research for a number of reasons. First, while a single individual can use the fishbone diagram, the diagram works well in setting where multiple members of a team or group are working together. The diagram offers a visual display of information that is easy to read and interpret, making it appropriate for action research participants in a variety of settings. That is, no special training, area of expertise of education is required to begin using this diagram to identify and analyze problems or in beginning to solve problems. The use of the fishbone diagram encourages stakeholder participation because of the focus on seeing the whole picture when it comes to identifying problems and specific causes (Coghlan, Bryndon-Miller, 2014).

Ishikawa diagrams are normally used to identify cause-and effect related weaknesses in the manufacturing process. Service firms, however, can easily adopt them to diagnose process weaknesses and uncover sources of customer value (Hermens, 1997).

When integrated as part of a long-term strategy, this technique:

 Equips quality, marketing and product development personnel with a data-ready tool that efficiently captures core customer needs and wants.

 Provides future customer information to the firm, which allows for preplanned product enhancements and scheduled product rollouts.

 Sends the message that the firm is listening to customer needs and responding to them.

 Sends a message that the firm is proactive.

 Fosters two-way communication with customers and develops long-term relationship, rather than reinforcing a onetime, transaction mind-set.

 Helps develop an intimate understanding of the customers business, empathy for customer issues, and a commitment to solving problems (Hermens, 1997).

Despite the many benefits, it has been highlighted that the Ishikawa diagram is not particularly useful for extremely complex problems, where the causes are numerous and the problems are interrelated. Yet, it is often these interrelationships that are the source of an experienced or potential problem (50MINUTES.COM, 2015).

A second criticism of the model is the hierarchy of the causes. This is carried out based on the experience of the working group, which may not have been involved in the statistical analysis of the problem that occurred previously. This ranking may then vary from one group to another, depending on subjectivities, and be less relevant and successful than strictly statistical data (50MINUTES.COM, 2015).

5W1H - Analysis of key problems

5W1H method is a series of question which is used to extend the question by asking a series of question until we are able to solve the problem from the root of problem by 5 different aspect which is what, where, when, who, why and the last one how. By asking those questions we can clearly understand more about the question are we up to solve (coursehero.com). 5

The 5W1H approach is an analytical strategy in which you use six questions — who, what, when, why, where, and how — to analyze a subject or process for assessment, reporting, and visibility (pyrus.com).

In managing your accounts payable workflows effectively, you need to maintain an adequate level of transparency and visibility. Visibility is important for being able to control workflows, make rule changes, monitor progress, and get your people to perform. The 5W1H analysis can help you achieve this visibility. With it, you’ll get to know who is doing what, where they are doing it, why they are doing it, when they are expected to finish, and how they are going about it (pyrus.com).

5W1H analysis provides people with a scientific method of job analysis, often applied to the formulation of the draft plan and analysis of the work and planning, and can make our work effectively, so as to improve efficiency. 5W1H analysis method is widely used in enterprise management, production and life, teaching and research, etc., this way of thinking is a great convenience to people’s work and life (albertkevincom.wordpress.com).

*Why?*

"Why" denotes "objective" or "reasoning". For example, Why you are doing, what are you doing? You must have clear objective of doing something esp. on a commercial level like creating a marketing strategy. Without well-defined objective(s), creating and implementing any strategy could result in waste of both time and resources (optimizesmart.com).

*What*?

"What" denotes "what is involved". Creating and implementing any strategy requires time, cost, subject matter expertise and other resources. So you need to determine exactly what is involved in creating and implementing you strategy (optimizesmart.com).

*Who*?

"Who" denotes "people". These people can be you, your colleagues, boss, stakeholders, employees, clients or other target audience. Every strategy requires the input of one or more people or is directed toward one or more people. So you need to know exactly who is involved in the creation and implementation of your strategy and who will benefit from it (your company, clients etc) (optimizesmart.com).

*Where?*

"Where" denotes "direction" or a point/step in a process/development. It can also denote "location". This is the direction in which your strategy should move so that you can get highest possible return on your investment. The ability to move in the right direction and at the right time is what that separates a good strategy from a bad strategy (optimizesmart.com).

*When*?

"When" indicates "situation", "date and time" or "deadlines". A strategy needs to be time stamped to be cost effective. Without deadlines there is no urgency. You can create your strategy next week or after 2 months. Without deadlines, every goal is achievable. That is why it is imperative that every goal and strategy must be time bound (optimizesmart.com).

*How*?

"How" denotes "method" i.e. exactly how you will create your strategy or how you will implement it. Though "how" can also be covered by the 5 Ws, use it specially to outline processes in great details (optimizesmart.com).

**Implementing tools of the strategic change (Force-field analysis, Stakeholder analysis, Balanced Scorecard)**

While some people welcome change in their work environment, many others reset it, at least to some degree. The reasons are not hard to find. Change is difficult. There is a learning curve associated with any change, and that means that people who were once regarded as experts may feel as if they are novices. Even if the change is as seemingly simple as moving from one office to another, there are still the initial hurdles of unfamiliarity to overcome (Tayntor B. Ch, 2010).

William Bridges points out that for any change to be successful; it must have the Four Ps: purpose, picture, plan, and part.

 *Purpose* – If the reason that the change is being implemented is not clear – and clearly communicated – the likelihood of success is diminished. Why would targets support a project whose value they do not understand, particularly when it will cause them more work or might even result in their losing their jobs? There should be no doubt in anyone´s mind why a project has been undertaken and what benefits are expected to result.

 *Picture* – It is not sufficient to understand why a change is occurring. It is equally critical that all persons involved have a clear vision of the end state. What will the company/their department/their individual jobs look like once the change is complete? Trying to implement change without this vision is a bit like trying to assembler a jigsaw puzzle without having seen a picture of the finished product. Although it is possible to assembler the puzzle or implements the change, the process is more frustrating and will take longer.

 *Plan* – Simply knowing what the end state will be is of little value if the team does not have a plan to reach it.

 *Part* – Lastly, it is important that everyone who is involved in the change understands the role, or part, he (or she) is expected to play and the tasks he is expected to accomplish. Without that understanding, people may be working at cross-purposes or simply not working at all (Tayntor B. Ch, 2010).

Other components of successful change are commitment and sustainability. The key points to remember about change are:

 Resistance is normal.

 A good plan helps.

 Effective, honest communication is essential (Tayntor B. Ch, 2010).

Thompson J. and Martin F. (2010) wrote that implementation incorporates a number of aspects, some of which can be changed directly and some of which can only be changed indirectly. The latter aspects are more difficult for the strategic leadership to control and change. The success of the strategic leader in managing both the direct and indirect aspects influences the effectiveness of:

 the implementation of strategies and strategic changes which are determined through the planning and visionary modes of strategy creation, and

 the ability of the organization, and its managers, to respond to change in the environment and adapt in line with perceived opportunities and threats.

**Aspects of implementation that can be changed directly**

 The organization structure (defined structure, not necessarily the way in which people behave within the structure)

 management systems

 policies and procedures

 action plans and short-term budgets

 management information systems (Thompson J. & Martin F., 2010).

**Aspects of implementation that are changed indirectly**

 Communication systems

 managing and developing quality and excellence

 manifested values and the organization culture

 the fostering of innovation

 tools of its implementation (Thompson J. & Martin F., 2010).

**Successful implementation**

To counter these problems Owen (1982) suggests the following:

 Clear responsibility for the successful outcome of planned strategic change should be allocated.

 The number of strategies and changes being pursued at any time should be limited. The ability of the necessary resources to cope with the changes should be seen as a key determinant of strategy and should not be overlooked.

 Necessary actions to implement strategies should be identified and planned, and again responsibility should be allocated.

 Milestones, or progress measurement points, should be established.

 Measures of performance should be established, as well as appropriate monitoring and control mechanisms (Thompson J. & Martin F., 2010).

There is no best way of implementing strategic change. There are no right answers, as such (Thompson J. & Martin F., 2010).

**Force-field analysis**

Force-field analysis is one of the oldest management tools available and is derived originally from Lewin (1935). Force-field analysis can be defined as the diagnosis and evaluation of enabling and restraining forces that have an impact on the implementation of a strategic project (Grundy T. & Brown L.,2002).

Force-field analysis is an illustrative method that summarizes key stakeholders support and opposition to particular reforms. It is capable of providing an overview of the pressures for and against change. The method of placing stakeholders on a continuum according to their opinions of the reform provides a quick overview of the political climate surrounding the reform. With the identification of key stakeholders and an assessment of their potential effect on the direction of reform design and implementation, it can be used as an initial step in a more comprehensive political economy analysis. Force-field analysis helps map and understand the various forces (such as stakeholders, habits, customs, attitudes) acting on (for example, resisting or supporting) a proposed change or policy issue; it also assesses the source and strength of resistance to – or support for – reform. Ensure that all potential forces are

included in the analysis. If one is missed, then its impact could negatively affect the achievement of an aim/goal or the implementation of a policy reform. All significant forces or factors must be included and considered (Holland J.,2007).

In force-field analysis you examine the forces in the current situation that can hinder or obstruct change, and those that can support or drive the change forward. The forces for change may include goals and strategies for change, the people who are actively supporting it, resulting benefits to customers and to working practices, and problems with the current situation. The forces against change include the costs incurred, such as training and additional resources; and resistance from staff and managers. The strength of each force is assessed. If those for change are equal to those against, the result is equilibrium and nothing will change (Partridge L., 2007).

*Figure 1: Force-field analysis*



(Partridge L., 2007)

The forces for change may be strong where there is senior management commitment and compelling external pressures, such as the need to conform to new legislation or to meet new customer requirements. If the force for change outweigh those against the change can be driven forward. But if the forces against are greater than those for change, then it may not be possible to carry out the change successfully, unless you can significantly influence the forces at work. Influencing there forces is part of your role as a leader – you will want to build up the forces for change and decrease or minimise those against change (Partridge L., 2007).

Force-field analysis can be used in a number of ways. First, it can be used very formally, either within a team or individually. Or, it can be used intuitively – in effect as a form of organizational radar. In fact, having used force-field analysis formally a number of times enable it to become unconscious. However, there are situations when you really do need to revert to a formal picture, if only to get a clearer mirror of you own intuitions (Grundy T. & Brown L.,2002).

**Stakeholder analysis**

The purpose of stakeholder analysis is to identify those key individuals or groups of individuals who have an interest in an organisation´s performance and may be able to influence it in some way. As such, stakeholders include not only employees, managers, shareholders, and unions, but also bankers, customers, suppliers and, potentially, the wider community (Balogun J. & Haley H. V., 2004).

For change to be successful, managers need to know who is affected by the change and who needs to be involved with it. Being able to categorize a stakeholder is crucial for prioritizing and identifying appropriate influencing strategies. The benefits of using a stakeholder-based approach are:

 Managers can use the opinions of the most powerful stakeholders to shape projects at an early stage. Not only does this make it more likely that stakeholders will support the change, but also their input can improve the quality of the process.

 Gaining support from powerful stakeholders can help to win more resources. This makes it more likely that change projects will be successful.

 By communicating with stakeholders early and frequently, managers can ensure that they fully understand what is happening and understand the benefits of the change. This means that they can actively support the change when necessary.

 Managers can anticipate what people´s reaction to the change may be, and build into their plan the actions that will influence and win people´s support (Hodges J., 2016).

To carry out a stakeholder analysis the following three steps are proposed:

*1) Identify key stakeholders*

This first step in stakeholder analysis is to identify who are the key stakeholders. This is best done as a group exercise. Ask:

 Who will be affected by this change?

 Who will be responsible for making it happen?

 Who will be accountable for it?

 Who will benefit from the change?

 Who can influence the change?

*2) Analysing stakeholders*

Once all the key stakeholders have been identified you then need to assess how they will impact the change. To do this consider the following:

 How much influence do they have to make the change happen, or to prevent it from happening?

 How supportive are they of the change? Do their actions match their words?

 How much change will they experience themselves? How easy or difficult will it be for them?

 What is their interest in the change?

 How much power do they have? Is their power positional or relational?

*3) Manage stakeholders*

The final step is to develop and understanding of the most important stakeholders and identify how they are likely to respond, co that you can work out how to win their support. For this can be the template used for a stakeholder plan in figure 2. This exercise of analysing and managing stakeholders will give you a guide to where you need to devote your time and effort. Stakeholders who are not committed to the change and who can influence the project represent a potential risk. The stakeholders who are optimistic and supportive of the change need to be engaged in it (Hodges J., 2016). 5

*Figure 2: Stakeholder analysis*



(Hodges J., 2016)

The key activities involved in managing change include for example:

 ensuring there is a clear expression and understanding of the reasons for the change, and helping the sponsor to communicate this;

 planning how and when the change will be communicated, and organizing and/or delivering the communications messages;

 assessing the impact of the change on people;

 making sure those involved or affected have help and support during times of uncertainty and upheaval;

 others may be required in specific situations (Hodges J., 2016).

**Balance Scorecard - BSC**

The idea of a balanced performance measurement is essential to a standard tool, the so called balanced scorecard (BSC). It balances four perspectives of performance and offers performance measures for each perspective (Reiss M., 2012). 6

*Figure 3: Perspectives of the Balanced Scorecard*



(Reiss M., 2012)

The BSC is most effective when it's part of a major change process in an organization. Adopting the new measurement and management. System helps leaders communicate the vision for change and empower business units and employees to devise new ways of doing their day-to-day business to help the organization accomplish its strategic objectives (Kaplan S. R. & Norton P. D., 2001).

The Balanced Scorecard is about learning: learning about your strategy, learning about the assumptions you´ve made to win in your marketplace, and learning about the value proposition you´ve put forth. Sometimes you won´t enjoy what your measures are telling you, but your challenge is to use these deviations from plan as opportunities for learning, not simply as defects in need of remedy (Niven R. Paul, 2006).

**Quality Tools and Improvement (PDCA Model, Benchmarking)**

**Introduction**

Quality tools are the standard procedure used to ascertain whether a product manufactured, adheres to a set quality criteria and meets the requirement of the customer. These procedures are undertaken so as to ensure the quality of the product and to meet the ISO requirements (Visveshwar, Vishal, Venkatesh, Samsingh & Karthik, 2017).

Kaoru Ishikawa, professor of engineering at Tokyo University, was the first to highlight the 7 basic Quality tools (Eslamy, Newman & Weinberger, 2014) which include:

**1. Cause-and-effect (fishbone) diagram**

- Also called “the Ishikawa diagram” because its form resembles with a fishbone (the problem is represented by the head, while the causes are represented by the skeleton bones). Thereby, the problem is written to the right of the diagram, the causes’ categories are represented by diagonal lines (the bones) connected with the horizontal line (the spine). Its main role is to identify, classify and emphasize the possible causes for certain specific problems. Practically, this diagram presents in a graphic manner the existing bonds between a result (effect) and the factors (causes) which have an influence over this result (Dobrin, Deac & Dinulescu, 2017).

**2. Check sheet**

- Also called “verification list”, is presented like a

table or a diagram, for recording some data in order to obtain a

clear image over a certain problem. Basically, a check sheet

represents a tool for collecting data and presenting the results (Dobrin, Deac & Dinulescu, 2017).

**3. Control charts**

- Control charts represent statistical instruments used for determining the variation degree that exists in a process. This tool is represented in the form of a line chart which includes a medium line (an average), and a superior and inferior control limit of this line, known also as control limits (Dobrin, Deac & Dinulescu, 2017).

**4. Histogram**

- The histogram, as a statistical instrument, is the graphic representation of a frequency distribution, belonging to a data set which corresponds to a number of registrations. Once build, the histogram helps us to understand the general tendency of dispersion or of values’ frequencies. These types of graphs which present the frequencies’ distribution don’t show the process’ dynamic, but a picture of its performance at a certain time (Dobrin, Deac & Dinulescu, 2017).

**5. Pareto charts**

- Pareto charts are similar to the histograms, the exception being the fact that these order the data performance level in frequencies’ descending order, including in the same time other terms for better highlighting the Pareto principle (Dobrin, Deac & Dinulescu, 2017).

**6. Scatter diagram**

- Scatter diagram (correlation diagram) represent a tool used for analyzing the relationship between two variables, respectively the correlation level and type between two variables. Representing this diagram will begin from an axe system X0Y, on each axis being represented a variable. Their distribution point reveals a certain pattern regarding the relationship between those two variables. If both variables increase over time (and both decrease), there is a positive correlation between the two of them, and if a variable increases and the other decreases, there is a negative correlation. If a variable increases and the other has a random distribution, between those two variables there is no correlation (Dobrin, Deac & Dinulescu, 2017).

**7. Stratification**

- Stratification represents a data group classification tool which contains similar characteristics. In this way, every group is named layer. The main objective of this instrument is to isolate the cause of a deficiency, and then identify the influence degree of various factors. Stratification can be realized depending on time, personal, material, environment, etc. (Dobrin, Deac & Dinulescu, 2017).

Subsequently, some replaced the 7th tool, stratification, with either **flowchart** or **run chart** (Eslamy, Newman & Weinberger, 2014).

These tools of quality can be used once the data is collected from the industry. Moreover, these quality tools are backed by statistics, which helps in analysing the data and obtaining utilitarian results. They help to detect the root causes of the problems encountered in the industry (Visveshwar, Vishal, Venkatesh, Samsingh & Karthik, 2017).

Quality improvement (QI) is part of quality management focused on increasing the ability to fulfil quality requirements and continuous quality improvement (CQI) is a part and parcel of quality improvement. Continual improvement refers to “a systematic effort to seek out and apply new ways of doing work (i.e. actively and repeatedly making process improvements)”, (Kholif, Abou El Hassan, Khorshid, Elsherpieny & Olafadehan, 2018).

Various institutions employ various tools, approaches, and techniques such as

- PDCA cycle or Deming's,

- Six Sigma,

- Preoperational excellence for the application of the quality tools.

Irrespective of the method, approach, technique or the name of the continual improvement program, every institution must use an appropriate choice and combine various approaches, methods, and techniques in its application of the process (Kholif, Abou El Hassan, Khorshid, Elsherpieny & Olafadehan, 2018).

Continuous improvement is is an essential precept of the total quality management. It is a vital element of accomplishment and keeping of the institution's competitiveness, and has to be an undying goal of the institution (Kholif, Abou El Hassan, Khorshid, Elsherpieny & Olafadehan, 2018).

**PDCA**

The PDCA cycle is a well-known framework rooted in manufacturing that facilitates continuous improvement and advocates for the value of considerable upfront planning and the use of statistical tools to help reveal problems and support data-driven interventions (Morgan & Stewart, 2017).

The PDCA cycle, also known as the Deming Cycle, was designed to coordinate continuous improvement plans by categorizing improvement actions into a dynamic cycle of four steps: plan, do, check, and act (Bereskie, Sadiq & Rodriguey, 2017].

The PDCA cycle methodology was developed when the products hitherto considered exclusive were no longer unique and began to face competition in a market increasingly geared to quality management (Silva, Medeiros & Vieira, 2017).

The concept was originally developed by Walter Shewhart and W. Edwards Deming in the 1950s and was developed to encourage the use of a small-scale improvements for continuous performance improvement while allowing for rapid assessment of improvement actions (Bereskie, Sadiq & Rodriguez, 2017). This method was successfully implemented in Japanese companies, and later began to be known as the Deming Cycle (Silva, Medeiros & Vieira, 2017). It has since seen widespread study and application in academia and industry ranging from use in managing environmentally responsible process improvements to product development and healthcare. It is also featured as a component of ISO 9001:2015, a leading international standard for the development of quality management systems (Bereskie, Sadiq & Rodriguez, 2017).

The PDCA cycle was at first used as a tool to control the quality of products, but, soon after, it was recognized as a method to develop improvements in organizational processes. Currently, the cycle is characterized by its focus on continuous improvement (Silva, Medeiros & Vieira, 2017).

According to some authors, the PDCA is much more than a simple tool; it is also a continuous improvement philosophy introduced into the organization's culture. This methodology induces stepwise change, thereby leading the evolution of the company (Silva, Medeiros & Vieira, 2017).

Figure 1: Cycle PDCA steps



Source: Silva, Medeiros & Vieira, 2017 4

The phases of PDCA (Fig. 1) can be understood as follows:

**P) Plan**

In this phase, opportunities for improvement are identified and prioritized; the current situation of the process is investigated through consistent data; the causes of the problem are determined; and possible actions to mitigate the issues are chalked out (Silva, Medeiros & Vieira, 2017).

**D)Do:**

The purpose of this step is to voluntarily implement the action plan; select and document data; and note the unexpected events, lessons learned and knowledge gained (Silva, Medeiros & Vieira, 2017).

**C) Check**:

At this point, the results of the actions are analyzed. The new situation is compared to the old, verifying if there were improvements and whether objectives were met. For this, various graph support tools are used (Silva, Medeiros & Vieira, 2017).

**A) Action:**

At this stage, the team involved develops methods that will standardize the improvement (if the result has been reached); repeats the test to collect new data and re-evaluate the intervention (if the collected data is insufficient or circumstances have changed); or abandon the project and make another beginning from stage 1 (if the actions taken have not generated effective improvements), (Silva, Medeiros & Vieira, 2017).

For the steps to be effectively performed, it may be necessary to use other quality tools. These tools help mainly to analyze the problem and define the actions to be implemented. Quality tools to support the PDCA cycle are for example Analysis of the Method and Effect of Failures (FMEA); benchmarking; brainstorming… (Silva, Medeiros & Vieira, 2017).

**Benchmarking**

In the early 1990s, a single word captured the imagination and attracted the attention of the entire business world. Now, two decades later, benchmarking has gone through its trial is and tribulations and proven that it is here to stay (Milosevic, Djuric, Filipovic & Ristic, 2013).

Benchmarking is a tool for systematic and continuous improvement of processes by which performance of firms is compared with that of the best in class (Janardhana, Bangar, Roy & Bhanu, 2017). "The essence of benchmarking is the process of identifying the highest standards of excellence for products, services, or processes, and then making the improvements necessary to reach those standards - commonly called best practices'' (Milosevic, Djuric, Filipovic & Ristic, 2013).

Benchmarking is a prerequisite for Total Quality Management (TQM) and is determined by the level of market competition (Janardhana, Bangar, Roy & Bhanu, 2017).

However, any benchmarking paper introduction would not be indicative of a paper truly devoted to benchmarking if it did not give immediate praise to the Xerox Corporation for starting the entire trend. So, without further wait, it must be said that the origins of benchmarking can be tied back to the late 1970s when Xerox decided to compare its operations to those of its competitors (Milosevic, Djuric, Filipovic & Ristic, 2013). Xerox was losing market share and under a lot of pressure due to the increased efficiency and effectiveness with which its competitors were operating. After finding an appropriate target against whom to compare itself, Xerox began one of the greatest trends in the business world at that time. Xerox's success is the first in the history of benchmarking and the corporation has since achieved what is today called a top-benchmarking partner status (Milosevic, Djuric, Filipovic & Ristic, 2013).

**Benchmarking process variations:**

Benchmarking is considered to be a very structured process that consists of several steps. Matters and Evans (1997) have defined five steps that can generally be considered as the foundation of any benchmarking study:

- planning,

- team formation,

- data collection,

- data analysis

- action.

However, these steps are generally malleable to any specific situation (Milosevic, Djuric, Filipovic & Ristic, 2013).

Bhutta and Huq (1999) have slightly modified the list made by Matters and Evans and have added one more step, while fusing data collection and analysis. The added step follows planning and team formation and deals with identifying the appropriate benchmarking partners. Once assembled, the benchmarking team should then ***identify potential benchmarking partners*** - organizations that are considered by the business community to be world class at a given process. Though these organizations can be competitors, it is more common that they will be noncompetitors within the same industry (Milosevic, Djuric, Filipovic & Ristic, 2013).

Figure 2: The Benchmarking Wheel



Source: Milosevic, Djuric, Filipovic & Ristic, 2013

Bhutta and Huq (1994) have developed a cyclical model known as the Benchmarking Wheel, that depicts how the five steps, or rather their adaptation of the five steps, should look like (Figure 2).

Benchmarking can be carried out in many steps. Some organizations have used up to 33 steps while others have used only 4. In the end, different organizations may develop and use their own adapted steps in the benchmarking process, but no matter what the variance is, there will always be three major benchmarking phases.

- **The first phase** consists of measuring the performance of the best-in-class, relative to critical performance variables such as cost, productivity, and quality.

- **The second phase** is to determine how the measured levels of performance are achieved.

- And **the third phase** is to use the learned information in order to develop and implement a plan for (Milosevic, Djuric, Filipovic & Ristic, 2013).

Benchmarking is a continuous process, it can be said that it follows the PDCA (Plan-Do-Check-Act) cycle. **The plan phase** focuses on the various upfront decisions, such as the selection of functions and processes to benchmark, and the type of benchmarking study to embark on. In **the do phase**, one delves into a self-study to characterize the selected processes using metrics and documenting business practices. Furthermore, data (metrics and business practices) are collected on the company that is the benchmarking partner. **Check** refers to the comparison of findings via a gap analysis to observe whether negative or positive gaps exist between the benchmarking company and the benchmarking partner. **Act** refers to the launching of projects either to close negative gaps or maintain positive ones. (Milosevic, Djuric, Filipovic & Ristic, 2013).

Benchmark performance standards set by a firm become standards for other competing firms.Itis a continuousmanagement process wherein the best firm tries to upgrade its performance levels to new heights and other organizations try to update their performance to the levels of the best performer. Benchmarking philosophy helps organizations to identify their deficiencies and take cues from the best performer to improve (Janardhana, Bangar, Roy & Bhanu, 2017).

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